

Level II (Monitoring)

The action and focus for these species is monitoring (M). Declining population trend and habitat loss are not known to be significant at this point. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population (R), species whose stability (S) may be unknown (S?), species that are peripheral (P) for breeding in the habitat or state, or additional knowledge (K) may be needed.

Common Loon

Primary Habitat Type: Wetlands and Aquatic

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Common Loon (COLO) <i>Gavia immer</i> Level II M	~Grassy shorelines and islands, including grasses, sedges, and rushes	~Territories usually include an area of shallow water with emergent vegetation ~Lakeshore at least partially forested	~Requires lakes of ≥ 10 acres; nesting success is poorer on lakes that are < 25 acres ~Water clarity (minimum visibility of 3 to 4 feet) is important, as loons are visual predators ~Water depth > 6 feet to prevent winter kill of fish ~Lakes that remain ice-free for ≥ 4 months to allow young to fledge ~Islands or secluded shorelines (e.g. quiet bays) for nesting ~Steep slope adjacent to shoreline for an underwater approach to the nest	~Territory may range from 10 to 500 acres ~Nest at elevations between 6,000 and 8,000 feet	~Sensitive to human disturbances and water level fluctuations ~Requires abundant populations of small to mid-sized fish ~Strong fidelity to breeding territory ~Will use artificial nesting platforms ~Winters south to northern Mexico on coasts, bays, and estuaries

Found on lakes across most of Wyoming during migration, but nests only in northwestern Wyoming. Lakes that are suitable for loon breeding habitat include those that are at least 10 acres (4 ha), although reproductive success is better on lakes that are greater than 25 acres (10 ha); are free of human disturbances or have areas that are secluded from human activity; are between 6,000 and 8,000 feet (1830 and 2440 m) in elevation; have clear water with a minimum visibility of 10 to 13 feet (3 to 4 m), as loons are visual predators; have islands or protected shore areas for nesting and raising young; have abundant populations of small to mid-sized fish; are greater than 6 feet (2 m) deep to prevent winter kill of fish; and remain ice free for at least 4 months to allow young to fledge. Ideal nesting lakes also generally have at least partially forested, rocky shorelines; an area of shallow water with emergent vegetation; and a steep slope adjacent to the shoreline for an underwater approach to the nest. Builds a primitive platform nest of mud and vegetation, placed on the ground no more than 3 to 6 feet (1 to 2 m) from the water's edge. Will use artificial nesting platforms. Eggs (1 to 2, 89 mm) are olive-brown or olive-green, and sparsely marked with black or brown. Feeds by diving from the surface and pursuing fish; may also take some aquatic invertebrates, especially crustaceans. Winters south to northern Mexico on coasts, bays, and estuaries. Is threatened by loss of nesting habitat. May be threatened by acid rain, which kills fish that are used as food. Is intolerant of human disturbances, which may cause nest desertion. Nests may be flooded by boat wakes or water level fluctuation. Other species that may benefit from habitat management for this species include the Northern Harrier, Sandhill Crane, and Canada Goose.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Common Loon in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Maintain the suitability of currently used Common Loon nesting territories.
- 2) Protect large, clear, deep lakes throughout the state from habitat degradation.
- 3) Maintain water quality to sustain substantial populations of small to mid-sized fish as a food source for Common Loons.

Recommendations

- 1) Protect all current and traditional Common Loon nesting sites from development and degradation. Because loons exhibit strong year-to-year fidelity to previous nest sites,

there is a high probability that they will reuse nests and nurseries if these areas are not developed or degraded. When possible, two or three alternate sites with characteristics of preferred nesting areas should be protected on each breeding lake. Small islands should receive complete protection from development. Undeveloped buffer zones of at least 500 feet (150 m) should be left on either side of nest sites and nursery areas.

- 2) Protect all areas with characteristics suitable for nesting and chick rearing, even if actual use has not been documented.
- 3) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff into lakes.
- 4) Maintain stable water levels throughout the nesting season in lakes where Common Loons are breeding. Rising water levels can flood nests and, although small drawdowns may be acceptable if distances between nests and the water's edge are not greatly increased, significant lake level subsidence may cause nest desertion or loss of newly-hatched chicks.
- 5) Avoid disturbing nesting areas, as loons are very sensitive to human disturbance. During times of human intrusion, incubating loons slip off nests, swim underwater, and emerge at a distance, which leaves the nests open to predation. During disturbances after hatching, chicks are dropped off the adult's back, and are left near the shore, where they may be vulnerable to predation.
- 6) Restrict access to Common Loon nesting territories during the breeding season. Limit or prohibit activities such as boating, fishing, swimming, camping, and picnicking near nest sites and in nursery areas. In some cases, posting signs to discourage visitors may be effective. However, signs may also draw attention to nesting sites and may be ineffective when enforcement is not possible. In such cases, efforts to educate the public may be the most reasonable method of reducing disturbance.
- 7) Educate the public about the natural history and conservation needs of loons. Most human-related loon problems stem from ignorance, not intent. Public education can include posters and information at marinas and other lake access points; informational brochures; press releases; and lectures, slide programs, and other presentations. Visitors can be required to attend an educational program before entering a wilderness or recreational area with breeding loons.
- 8) Establish boat engine horsepower limitations and/or speed limits on lakes where Common Loons are breeding, and strictly enforce boating restrictions. Motorboats and personal watercraft (e.g. jet skis) produce waves that can destroy nests and create disturbances that can cause egg or chick loss.

9) Consider known loon nest sites and nesting territories when establishing new campgrounds or campsites. Close present campsites or campgrounds near known loon nesting sites and designate specific campsites well away from nesting loons. Since loons prefer to nest on small islands when they are available, camping should be prohibited on islands, and other uses of islands should be discouraged or, if necessary, prohibited.

10) Consider installing and maintaining artificial nest platforms where fluctuating water levels or the lack of suitable nest sites is limiting Common Loon reproduction. Artificial nest platforms may improve nesting success on lakes that lack natural islands, have poor shoreline nesting habitat, or have a history of low productivity. Platforms rise and fall with water levels and can counteract extreme fluctuations on lakes where loons are not considered in water management plans. Platforms alone are unlikely to induce nesting on unoccupied lakes or territories, and should not be viewed as an easy alternative to the protection of natural nest sites. Artificial nest platforms should not be used where loons are already nesting successfully or where natural nest sites are already available, because they require yearly maintenance, increase dependence on long-term human interest, and attract human attention.

11) Construct artificial nest platforms of five 6- to 8-foot (1.8- to 2.4-m) cedar logs, approximately 8 inches (20 cm) in diameter. Notch the logs at both ends, shape them into a square frame with one cross-log, and join them with #20 galvanized spikes. Staple a 5x5-foot (1.5x1.5 m) piece of heavy plastic snow fencing mesh to the bottom of each frame, wrapping it halfway up the sides from underneath, and making sure there are no protrusions or wild ends that might injure a bird. Attach 3/16-inch (0.5-cm) wire cable to two opposite corners of the raft with cable clamps and secure the cables to two cement block anchors. Fill the raft with 4 to 6 bushels of duff, loose leaves, twigs, and roots, and plant it with low-growing vegetation indigenous to the natural nesting area. Because loons begin nesting very soon after ice-out, install nesting platforms within 2 weeks after ice-out. Place platforms in areas of minimal human disturbance, out of the direct path of prevailing summer winds and waves, in 10 to 30 feet (3 to 10 m) of water and approximately 100 to 165 feet (30 to 50 m) from shore. Completed platforms may last for 3 or 4 years, but in some cases, especially in unprotected locations, they may blow to shore during the spring or fall and have to be pulled back into the lake or replaced.

American White Pelican

Primary Habitat Type: Aquatic

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
American White Pelican (AWPE) <i>Pelecanus erythrorhynchos</i> Level II M	~Prefers open areas of annual grasses and forbs, shrubs, ~Prefers nonvegetated areas for nesting	~Nests on flat islands without vegetation >3 feet or other tall obstructions	~Breeds on large freshwater lakes ~Requires islands isolated from mammalian predators for nesting ~Prefers gravel or sandy, unconsolidated substrates for nesting	~Adults may travel to lakes, rivers, and marshes >50 miles away from the nest site to feed	~Nests colonially and is highly social ~Very sensitive to human disturbance during nesting ~Nest site tenacity between years is low ~Winters south through lowlands to Nicaragua

Uses a variety of aquatic habitats for foraging and can be found on rivers, streams, lakes, ponds, and marshes throughout Wyoming. Nests at only a few specific locations in the state, as breeding habitat is much more restrictive. Nests colonially on large freshwater lakes, and requires islands isolated from mammalian predators. Colonies are usually located on flat, open ground near water. Creates a scrape on bare ground or a mound of soil and debris. Prefers gravel or sandy, unconsolidated substrates for nesting. Eggs (2, 90 mm) are white, often nest-stained. Feeds mostly on nongame fish, such as carp and suckers, and salamanders and crayfish; trout and other game fish comprise less than 5% of its diet. Feeds while swimming, dipping its bill into the water to catch fish in its pouch. Often feeds in small groups that may cooperatively herd fish toward shallow water where they are easier to catch. Adults may travel over 50 miles (80 km) from the nest site to feed. Winters south through lowlands to Nicaragua. Is primarily threatened by combinations of changing water levels and human disturbance. Pesticides have caused eggshell thinning in some areas. Other species that may benefit from habitat management for this species include the California Gull, Caspian Tern, and Double-crested Cormorant.

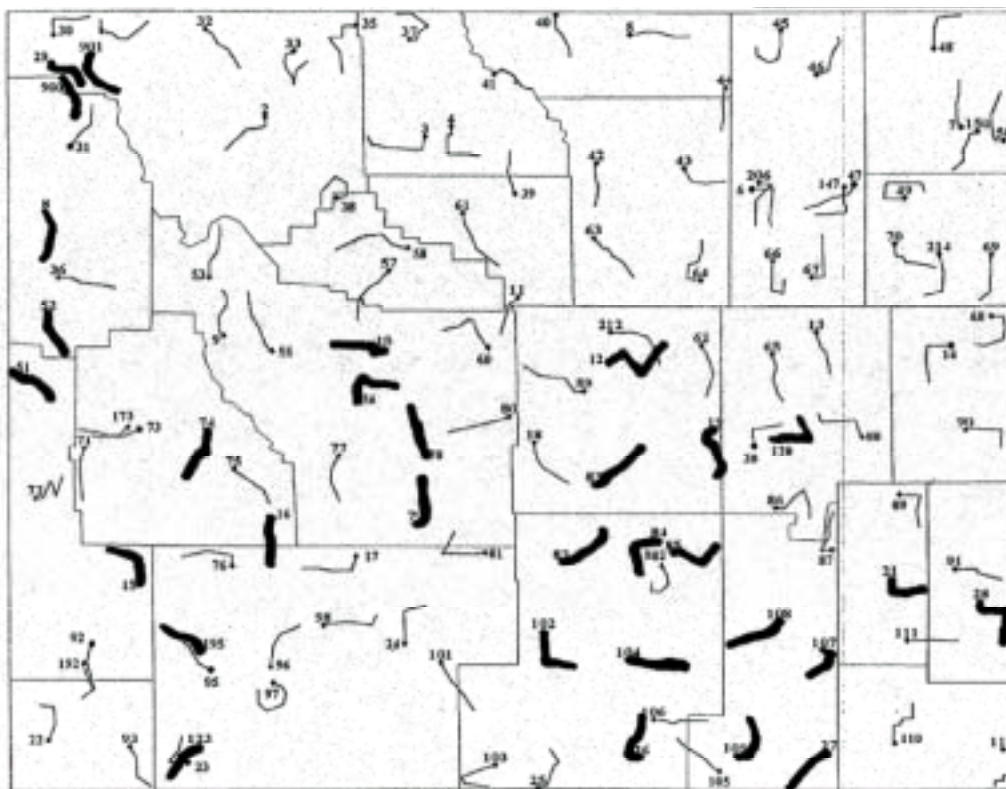
Population Objectives

1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate American White Pelicans have been detected on 31 BBS routes in Wyoming, including 15 routes on which they were observed a minimum of 3 years.

- a) Maintain American White Pelicans on the 31 BBS routes on which they were observed (Figure 23).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

3) Maintain a minimum of two nesting colonies in Wyoming, including one nesting colony outside of Yellowstone National Park.



NOTE: Survey routes are not drawn to scale and are intended only to provide approximate route locations (5/96, kdp).

Figure 23. Bold lines indicate Breeding Bird Survey routes on which American White Pelicans have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain water levels at lakes where American White Pelicans nest.
- 2) Maintain substantial populations of fish as a food source for American White Pelicans.

Recommendations

- 1) Minimize water level fluctuations during the nest-building through fledging stages of American White Pelicans. Rising water levels can flood nests and lake level subsidence may connect islands to the lakeshore, exposing eggs or young to mammalian predators.
- 2) Protect any colony sites currently in use, regardless of the size of the site or the number of pelicans present.
- 3) Protect all remaining suitable aquatic habitat in the state. The success of American White Pelicans depends, in part, on their flexibility in choosing nesting areas. This makes protection of all suitable lakes and islands important because pelicans may use a particular site only occasionally, but when they do, it may be their only chance of nesting success.
- 4) Maintain ample foraging areas within range of colonies. Protect foraging habitat from widespread permanent flooding or drainage.
- 5) Avoid disturbing nest sites during the breeding season, as colonies are very sensitive to human disturbance. Restrict entry at colonies with excessive human disturbance. In some cases, posting signs to discourage visitors may be effective. However, signs may also draw attention to colony sites and may be ineffective when enforcement is not possible. Efforts to educate the public may be the most reasonable method of reducing disturbance.
- 6) Maintain a minimum disturbance-free buffer zone of 330 to 590 feet (100 to 180 m) at breeding colonies.
- 7) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff into aquatic habitat. This is particularly important where American White Pelican colonies are adjacent to agricultural land, and vulnerable to contamination from agricultural runoff.
- 8) Consider building and maintaining artificial islands in areas where a lack of suitable nesting habitat is limiting American White Pelican reproduction. Construct islands of soil or dredged materials, at least $\frac{1}{4}$ acre (0.1 ha) in size. Islands should be flat and situated well offshore for protection from mammalian predators and human disturbance.

Harlequin Duck

Primary Habitat Type: Montane Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Harlequin Duck (HARD) <i>Histrionicus histrionicus</i> Level II M, P		~Dense streamside shrubs ~Overhanging vegetation	~Remote mountain streams ~Good water quality	~Sections of stream with low gradient (<5%), braided channels, sections with swift currents ~Mid and late succession	~Strong fidelity to breeding streams and natal areas ~Very sensitive to human disturbance in breeding territories ~Requires abundant aquatic insects ~Arrives in WY late April; by mid July most males and nonbreeding females depart; females with young depart from mid August to late September ~Winters in coastal North America

Found only in the northwestern corner of Wyoming. Prefers cold, shallow, rapid mountain streams away from concentrated human activities. Nesting habitat includes very low gradient stream sections with dense shrubs lining the banks, braided channels, swift currents, and water rich in aquatic insects. Nests on the ground or in a tree cavity. Nest is a mass of down concealed in a rock crevice or cavity along a stream. Eggs (6 to 8, 58 mm) are pale buff or cream colored. Is a diving duck that eats crustaceans, mollusks, insects, and fish. Winters in marine waters along the Pacific coast. Its presence on a particular stream is an indicator of high water quality. Nesting success is impacted by stream degradation due to sedimentation, channelization, logging, incompatible recreation, and incompatible livestock grazing. Other species that may benefit from habitat management for this species include the Bald Eagle, Calliope Hummingbird, Willow Flycatcher, American Dipper, Lazuli Bunting, Veery, and Bullock's Oriole.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Harlequin Duck in Wyoming. Determine population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

Habitat Objectives

1) Maintain water quality in high elevation mountain habitats by eliminating or limiting habitat changes that are detrimental to Harlequin Ducks, such as tie hack logging, sediment loading, and development.

Recommendations

1) In areas where Harlequin Ducks nest, ensure that old growth occurs in and around premier streams, and that recreation, grazing, forest management, and logging do not impact preferred nesting habitat.

2) In areas where Harlequin Ducks nest, maintain high water quality and stream stretches with high densities of invertebrates.

3) Avoid clearing debris from high elevation mountain streams to ensure Harlequin Duck nesting and feeding habitat is present.

4) Avoid trail construction and maintenance, other management activities, or intense recreation along known Harlequin Duck breeding streams during the first 7 to 10 days after hatching, as they are especially vulnerable to disturbance during this time. If necessary in areas of intense activity, close stream sections where Harlequin Ducks are known to breed while the chicks are flightless (June to early August).

Merlin

Primary Habitat Type: Low Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Merlin (MERL) <i>Falco columbarius</i> Level II M	~Ponderosa pine ~Douglas-fir ~Open woodlands close to grasslands or shrub-steppe	~Trees spaced well apart whose lower 8 to 10 feet are bare of branches ~Open understory	~Sometimes in cities and towns ~Elevation <8,500 feet	~Conversion of sagebrush/grassland to cropland greatly lowers quality of foraging habitat ~Home range is 7 to 11 square miles; may be smaller where prey is abundant	~Depends on grassland birds for food ~Still affected by pesticides in many areas of North America, but no longer a major factor controlling populations ~Usually uses abandoned Black-billed Magpie nest ~Fidelity to nest territory is variable ~May desert nest if humans climb nest tree during early incubation ~Can be bred in captivity ~Is a year-round resident in Wyoming

Found scattered throughout Wyoming, in most habitats below 8,500 feet (2,600 m). Found in open woodlands, savannah, grasslands, and shrub-steppe. Has expanded into cities and towns in recent decades. Nests in large trees (usually ponderosa pine, but also other conifers and cottonwood) in open woodlands within a short distance of open sagebrush/grassland for foraging. Tends to select nesting sites that combine the attributes of easy access, a good view of the surrounding area, and maximum concealment of the nest. Nests 8 to 60 feet (2.4 to 18 m) above ground, in trees spaced well apart whose lower 8 to 10 feet (2.4 to 3 m) are bare of branches, and in areas with open understory. Does not build its own nest, but uses an abandoned corvid or hawk nest, particularly domed stick nests. In Wyoming, it almost always uses the abandoned nest of a Black-billed Magpie, to which it makes few, if any, modifications. Eggs (2 to 7, 40 mm) are white, marked with reddish-brown, some nearly unmarked. Some pairs return to the same area each year to nest; others show variable nesting site fidelity.

Feeds predominantly on birds, which it catches in fast, low, horizontal flight, rather than by stooping. Hunting flights often originate from perches where large areas can be scanned for prey. Birds make up 80% of the diet, insects (especially dragonflies) 15%, and small mammals 5%. The major prey is the Horned Lark in rural habitats, whereas in urban areas it is the House Sparrow. Is a year-round resident in Wyoming. Habitat loss is a primary limiting factor; conversion of sagebrush/grassland to cropland greatly lowers the quality of foraging habitat. The decline of an adequate food base is a secondary limiting factor. Populations were affected by organochlorine pesticides in the 1950s and 1960s, though to a lesser extent than Peregrine Falcons. Pesticide contamination continues to be a concern in this region, as some individuals may still be impacted, but at present it does not appear to be a major factor controlling population size. The expansion of populations into urban habitats helps to maintain numbers and is an optimistic reflection of the adaptability of this species. Other species that may benefit from habitat management for this species include the Red-headed Woodpecker, Lewis' Woodpecker, Pygmy Nuthatch, and Western Bluebird.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Merlin in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain open stands of mature low elevation conifer and cottonwood in a matrix with open sagebrush/grasslands.

Recommendations

1) Implement woodland management practices that maintain open stands of mature low elevation conifer and cottonwoods. Provide small groves of trees where they have been lost.

2) Minimize loss of sagebrush/grassland habitat by reducing urban and suburban sprawl, habitat fragmentation, and habitat conversion. Merlins require home ranges of 7 to 11 square miles (18 to 28 km²), although they may require less where prey is abundant. Conversion of sagebrush/grassland habitat reduces the quality of foraging for Merlins.

3) Use prescribed fire to maintain open stands of forests and woodlands where Merlins occur.

4) Implement agricultural practices that maintain open stands of trees. Avoid removing

hedgerows, clearing odd corners of fields, and planting large monocultures. To enhance foraging habitat for Merlins, avoid removing vegetation around wetlands.

5) Retain historical Merlin nesting sites and potential nest trees. Historic nesting locations which have harbored an occupied nesting territory in one or more years during the past decade should be protected from loss of trees. Because Merlins use alternate nest trees, retain all trees with domed stick nests within the historic stand.

6) Where corvid nests are unavailable and the lack of nesting sites is limiting Merlin reproduction, artificial nests may be beneficial and should be investigated.

7) In areas where Merlins have expanded into cities and towns, plant small groves of large trees to attract and enhance prey populations, and to provide nesting sites for corvids and, eventually, Merlins.

8) Carefully regulate and monitor the capture of Merlins for falconry.

9) Although pesticide contamination is not presently a major factor affecting Merlin populations, it is still a cause for concern, and it can also affect prey populations on which Merlins depend. Pesticides should be used carefully, and only if absolutely necessary, in areas where Merlins occur.

Snowy Plover

Snowy Plover (*Charadrius alexandrinus*) would appear here based on priority, but this species is currently documented as a peripheral breeder in Wyoming, and will not be addressed in the Wyoming Bird Conservation Plan at this time. This species will likely be addressed in regional conservation plans.

Black-billed Cuckoo

Primary Habitat Type: Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Black-billed Cuckoo (BBCU) <i>Coccyzus erythrophthalmus</i> Level II M	~Cottonwood ~Open woodlands	~High structure ~Dense vegetation		~Mid to late succession ~Urban areas can be important	~Insecticide use greatly reduces caterpillar prey base ~Winters in South America

Found mainly in the north-central part of Wyoming, with a few scattered reports from elsewhere in the state. Prefers upland woodlands that provide a variety of trees, shrubs, and vines; requires low, dense, shrubby vegetation that is commonly associated with riparian habitats in Wyoming. Builds a well-concealed platform nest of twigs lined with grass and plant down, typically 4 to 6 feet (1.2 to 1.8 m) above ground. Eggs (2 to 3, 27 mm) are bluish-green. Feeds primarily on hairy caterpillars gleaned from vegetation, but also eats bird eggs, frogs, lizards, berries, and fruit. Winters in South America. Use of pesticides to control hairy caterpillars, tent caterpillars, and gypsy moths greatly reduces the Black-billed Cuckoo's prey base, and incompatible livestock grazing eliminates or degrades vertical diversity needed for successful nesting. Other species that may benefit from habitat management for this species include the Willow Flycatcher, Yellow Warbler, MacGillivray's Warbler, Song Sparrow, Warbling Vireo, Yellow-breasted Chat, Common Yellowthroat, Lazuli Bunting, and Blue Grosbeak.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Black-billed Cuckoos have been detected on 18 BBS routes in Wyoming, including 7 routes on which they were observed a minimum of 3 years.
 - a) Maintain Black-billed Cuckoos on the 18 BBS routes on which they were observed (Figure 24).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

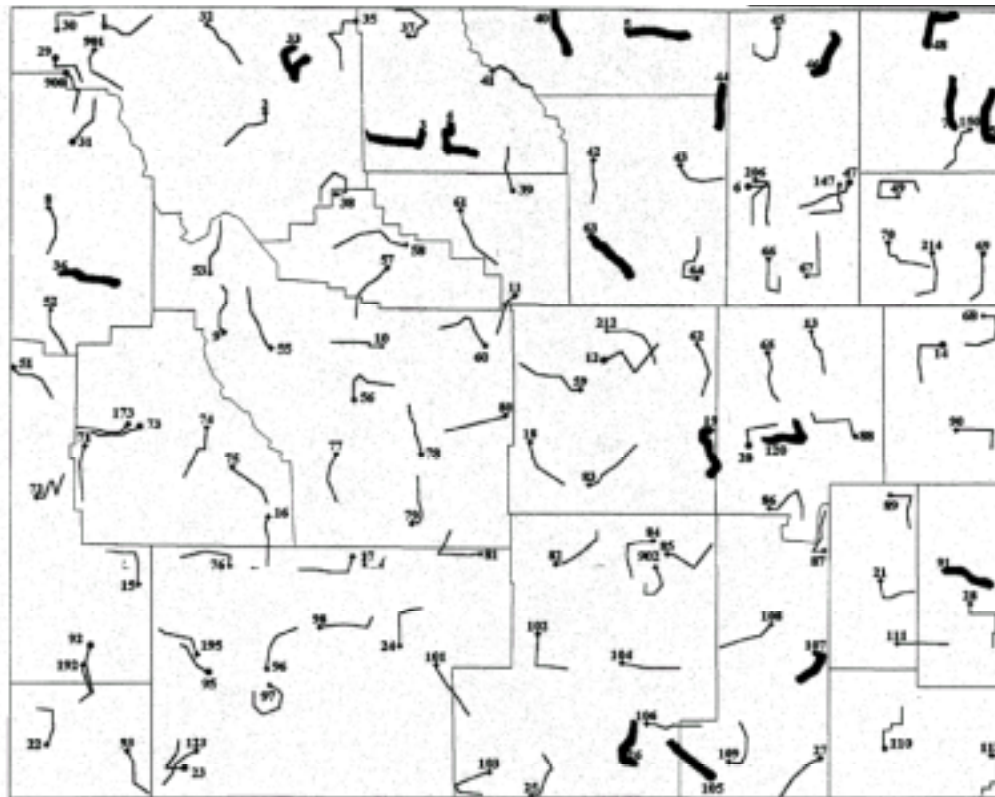


Figure 24. Bold lines indicate Breeding Bird Survey routes on which Black-billed Cuckoos have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain dense shrubs and diverse vegetation heights in plains/basin riparian habitat.

Recommendations

- 1) Avoid or minimize insecticide use in riparian areas to maintain a food source for Black-billed Cuckoos (and other insectivores). Postpone all insecticide use until Black-billed Cuckoos and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Yellow-billed Cuckoo

Primary Habitat Type: Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Yellow-billed Cuckoo (YBCU) <i>Coccyzus americanus</i> Level II M	~Cottonwood	~Mid to high canopy closure ~Nests ≤25 feet above ground in dense deciduous vegetation near water	~Elevation <7,000 feet	~Late succession ~Requires extensive, mature riparian woodlands, especially cottonwood or willow ~Requires ≥25 acres (prefers 100 acres or more) of broad-leaved forest at least 330 feet wide and ≥2.5 acres of dense nesting habitat per pair ~Marginal habitat is ≥10 acres of broad-leaved forest 165 feet wide	~Riparian obligate ~Loss of mature cottonwood stands is detrimental ~Cottonwood stand fragmentation is detrimental ~Insecticide use greatly reduces caterpillar prey base ~Winters in South America

Found mainly along the eastern edge of Wyoming, with a few scattered reports from elsewhere in the state. Is a riparian obligate species that prefers extensive areas of dense thickets and mature deciduous forests near water, and requires low, dense, shrubby vegetation for nest sites. Builds a flimsy platform nest of twigs lined with leaves, grass, moss, and rootlets on the horizontal limb of a tree or shrub 4 to 8 feet (1.2 to 2.4 m) above ground. Eggs (4, 31 mm) are light blue to light greenish-yellow. Feeds primarily on hairy caterpillars gleaned from vegetation, but also takes other insects, spiders, and some fruits, frogs, and lizards. Winters in South America. Is extremely sensitive to habitat fragmentation. Population declines in parts of its range are due to deterioration and fragmentation of riparian woodland habitat and to prey scarcity caused by pesticides. Other species that may benefit from habitat management for this species include the Yellow Warbler and Bullock's Oriole.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine

population trends for the Yellow-billed Cuckoo in Wyoming. Determine population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

Habitat Objectives

- 1) Maintain riparian cottonwood forests of at least 25 acres (10 ha) in size and at least 330 feet (100 m) wide.
- 2) Maintain at least 2.5 acres (1 ha) of dense shrubs and diverse vegetation heights per breeding pair.

Recommendations

- 1) Implement riparian Best Management Practices that maintain mature riparian cottonwood stands.
- 2) Eliminate fragmentation of riparian cottonwood stands in areas where Yellow-billed Cuckoos occur.
- 3) Avoid or minimize insecticide use in riparian areas to maintain a food source for Yellow-billed Cuckoos (and other insectivores). Postpone all insecticide use until Yellow-billed Cuckoos and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Western Screech-Owl

Primary Habitat Type: Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Western Screech-Owl (WESO) <i>Otus kennicottii</i> Level II M	~Cottonwood ~Aspen ~Conifers associated with riparian habitat	~Mid to old growth ~Requires snags and large trees	~Elevation <7,000 feet		~Winters in North America

Potential distribution is statewide, but typically occurs west of the Continental Divide. Favors riparian woodlands with widely spaced trees interspersed with grassy open areas for hunting. Requires cavities for nesting and roosting in trees with a minimum dbh of 12 inches (30 cm). Nests in a natural cavity or old woodpecker cavity,

especially those made by Northern Flickers. Eggs (2 to 5, 36 mm) are white. Swoops down on its prey from a perch and eats primarily rodents, but will also take insects, spiders, centipedes, scorpions, crayfish, amphibians, reptiles, fish, and small birds. Is a year-round resident in Wyoming. Low elevation deciduous forests and riparian areas are rapidly disappearing in some areas due to agricultural demands and urban development. Increased tree cutting could lead to a loss of essential habitat and nest cavities. Appears to be particularly susceptible to adverse weather conditions; severe winters cause a certain number of mortalities every year. Other species that may benefit from habitat management for this species include the Northern Flicker and Pileated Woodpecker.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Western Screech-Owl in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Manage cottonwoods for a mid to old growth canopy cover interspersed with grassy open areas for hunting in plains/basin riparian habitat where Western Screech-Owls occur.
- 2) Manage for snags of at least 12 inches (30 cm) dbh for nesting in plains/basin riparian habitat.

Recommendations

- 1) Implement riparian Best Management Practices that emphasize maintaining snags suitable for Western Screech-Owls in plains/basin riparian habitat.

Eastern Screech-Owl

Primary Habitat Type: Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Eastern Screech-Owl (EASO) <i>Otus asio</i> Level II M	~Needs cavities in trees	~Prefers open subcanopy and sparse shrub cover ~Requires snags and large trees	~Elevation <8,000 feet	~May be restricted to eastern WY	~Susceptible to disturbance at nest site ~Nest cavity competition with other species may occur ~Will nest in artificial nest boxes ~Winters in North America

Potential distribution is statewide, but typically occurs east of the Continental Divide. Favors riparian woodlands with widely spaced trees interspersed with grassy open areas for hunting. For nesting and roosting, requires cavities in trees with a minimum dbh of 12 inches (30 cm). Nests in a natural cavity or old woodpecker cavity, especially those made by Northern Flickers. Eggs (4 to 5, 34 mm) are white. Swoops down on its prey from a perch and eats primarily rodents, but will also take insects, spiders, centipedes, scorpions, crayfish, amphibians, reptiles, fish, and small birds. Is a year-round resident in Wyoming. Loss of woodland and riparian habitats due to agricultural and urban development is a concern. Nest cavity competition with other species may occur. Other species that may benefit from habitat management for this species include the Northern Flicker.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Eastern Screech-Owl in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain an open subcanopy and sparse shrub cover interspersed with grassy open areas for hunting in plains/basin riparian habitat where Eastern Screech-Owls occur.

2) Manage for snags of at least 12 inches (30 cm) dbh for nesting in plains/basin riparian habitat.

Recommendations

- 1) Erect artificial nest boxes to enhance population distribution and nesting success where competition with other species occurs.
- 2) Implement riparian Best Management Practices that emphasize maintaining snags suitable for Eastern Screech-Owls in plains/basin riparian habitat.

Great Gray Owl

Primary Habitat Types: Mid Elevation Conifer and High Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Great Gray Owl (GGOW) <i>Strix nebulosa</i> Level II M	~Montane conifer forests ~Tall aspens ~Often nests in Douglas-fir forests, with nests most commonly in Douglas-fir and lodgepole pine	~Mid to late successional stages of Douglas-fir on flat land with herbaceous understory and 50 to 60% closure of canopy cover	~1 square mile home range in WY	~Hunts meadows within forests	~Nests in old goshawk and raven nests, depression in top of broken topped snag, and dwarf mistletoe platforms ~Nest site and mate fidelity ~Year-round resident in Wyoming; may move to lower elevation in winter

Found mainly in the mountainous areas in the western 1/3 of Wyoming. Inhabits lodgepole pine, Douglas-fir, Englemann spruce-subalpine fir, mixed coniferous forests, and stands of tall aspens. Uses an abandoned hawk or eagle stick platform nest built in a dense conifer or on a broken-topped snag. Eggs (2 to 4, 54 mm) are white. Typically keeps the same mate and nests in the same vicinity each year. Feeds mostly on voles, but may take other small mammals and small birds. Hovers and pounces on its prey. Is a year-round resident in Wyoming; may move to lower elevations in the winter to avoid deep snow, which can reduce the availability of prey. Populations are restricted by lack of available habitat and habitat loss due to logging. Intensive timber harvest may be detrimental if nest sites or roost trees needed by fledged young are eliminated. Other species that may benefit from habitat management for this species include the Northern Goshawk, Black-backed Woodpecker, Three-toed Woodpecker, Hammond's Flycatcher, and Townsend's Warbler.

Population Objectives

- 1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Great Gray Owl in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Develop a cooperative, statewide, interagency/non-governmental organization database on Great Gray Owl nest sites, with data sensitivity built in.

Habitat Objectives

- 1) Maintain mid to late successional stages of mixed conifer and aspen stands with an herbaceous understory.

Recommendations

- 1) Use forest management practices that do not result in large-scale removal of montane coniferous forests.
- 2) Avoid removing and fragmenting montane coniferous forests through human developments.
- 3) Avoid removing suitable nest trees during timber or firewood harvest, including trees with mistletoe and broken-topped dead trees.
- 4) Inventory appropriate habitat to determine population and nesting status and specific habitat requirements of Great Gray Owls in Wyoming.
- 5) Conduct thorough surveys for Great Gray Owls prior to any timber harvesting.

Boreal Owl

Primary Habitat Type: High Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Boreal Owl (BOOW) <i>Aegolius funereus</i> Level II M	~High elevation conifer forests, particularly old growth spruce-fir ~High elevation patches of mature aspen, lodgepole pine, ponderosa pine, and Douglas-fir are important when available, as they provide more nest cavities than spruce-fir	~High density of large snags for nesting (average 25 inches dbh in Idaho) ~Interspersion of forests that includes mature and old growth spruce-fir ~High canopy closure ~Sparse understory vegetation ~Multiple canopy layers ~Low perches for hunting ~Large downed logs for prey habitat	~High elevation	~Home ranges are usually >2,500 acres but often overlap ~Defends territory within 350 feet of the nest ~Is absent from clearcuts but unaffected by small patch cuts or selection cuts ~May be limited in Wyoming by the lack of Pileated Woodpecker nest cavities	~Distribution and abundance are largely associated with nest cavity availability and prey populations ~Requires existing cavities for nesting ~Requires abundant small mammals, especially red-backed voles ~Readily uses nest boxes ~Strictly nocturnal ~Year-round resident in Wyoming, generally within a stable home range but disperses during poor prey conditions

Found primarily in western Wyoming and in the Sierra Madre range of south-central Wyoming. Inhabits mature, high elevation forests of Engelmann spruce, subalpine fir, and/or mature lodgepole pine; interspersed mature aspen stands are also important as they usually provide more nesting cavities than spruce-fir. Breeds at elevations of 6,560 to 10,630 feet (2,000 to 3,240 m). Requires large areas of interspersed forests that include mature and old growth spruce-fir, as home ranges are usually greater than 2,500 acres (1,000 ha). Prefers a structure that is typical of mature and old growth forests (i.e. large downed logs, a high overstory canopy, and large snags). Prefers areas with many openings or an open stand structure for foraging, and trees with large cavities. Nests in an existing cavity 10 to 20 feet (3 to 6 m) above ground. Uses an abandoned woodpecker cavity, natural cavity, or nest box with a well-matted bed of decayed wood chips and feathers; no lining materials are added. Eggs (3 to 10,

32 mm) are white. Primarily eats small mammals, especially red-backed voles, but will also eat birds, insects, and frogs. Snatches up prey from the ground after a gliding descent from a perch. Caches food in crevices or tree forks; assumes an incubating posture to thaw frozen prey. Is a year-round resident in Wyoming. Does not migrate, but is nomadic in response to cyclic prey populations. Distribution and abundance are largely associated with nest cavity availability and prey populations. Forest fragmentation and removal of mature forest habitats on a regional scale may harm populations. Other species that may benefit from habitat management for this species include the Great Gray Owl, Hammond's Flycatcher, Brown Creeper, Golden-crowned Kinglet, Ruby-crowned Kinglet, and Townsend's Warbler.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Boreal Owl in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain large stands of high elevation mature and old growth forests in areas where Boreal Owls occur. At the landscape scale, maintain a portion of each watershed in mature or older forest, and over half of each watershed in stands older than saplings. The area necessary to support a population likely exceeds 385 square miles (1,000 km²), so quality habitat should be well distributed throughout the species' range.

2) Manage for abundant small mammal populations and large woodpecker populations in high elevation forests. These will provide a food source and cavity nest sites.

3) Maintain mature aspen stands dispersed across the landscape, in a mosaic with other age classes.

Recommendations

1) Retain large-diameter snags and all trees with nest cavities. Retain mature and decadent trees for future snag production, particularly where existing snags are few. In conifer forests, potential nest snags should be greater than 15 inches (38 cm) dbh and part of a forest stand. Leave clumps of trees around large snags. Because Boreal Owls do not defend large nesting territories, potential nest stands may be close together.

2) Implement forest management practices that retain and encourage regeneration of mature aspen stands across the landscape. Even aspen stands that cover small areas are important because of the high use of aspen by primary cavity-nesters. Some aspen trees should exceed 13 inches (33 cm) dbh to support cavities large enough for Boreal Owls.

3) Avoid removing and fragmenting mature and old growth conifer forests through logging and human developments. Avoid clearcutting, except as needed to regenerate aspen. Clearcutting reduces primary prey populations, removes forest structure necessary for foraging, and eliminates nest cavities. Because forest succession is slow in spruce-fir forests, clearcut sites will remain unsuitable for roosting or foraging for up to a century and new nest trees will not develop for nearly two centuries.

4) Use uneven-aged management (such as selective tree harvest) and small patch cuts [2.5 to 7.5 acres (1 to 3 ha)] with long rotations (at least 150 years) to allow tree removal while maintaining suitable habitat. All tree sizes, including some very large trees, should be represented in the post-harvest stand to assure production of large snags for nesting, large woody debris for small mammals, and clumps with high canopy cover for roosting. Concentrate patch cuts in a portion of each watershed rather than dispersing them throughout entire watersheds. Retain mature forest in the matrix between cuts. Create complex-shaped cutting units, with stringers of forest extending into them, rather than large rectangular or circular cuts. Make sloppy cuts (with residual standing dead and live trees, especially aspen and patchy slash), and cuts that retain standing and downed wood on the site. Thinning stands from below (which removes individuals smaller than the dominant size class) and single-tree selection that reduces competition among dominant trees and increases tree growth could accelerate the process of developing suitable nest structures.

5) Avoid dense thicket-like timber that inhibits owl mobility.

6) Retain large woody debris as habitat for small mammals.

7) A well-maintained nest box program may be beneficial where snags are unavailable and the lack of nest sites is limiting Boreal Owl reproduction. Because nest box programs ignore requirements of species other than the target species, nest boxes should not be considered a desirable mitigation tool for future timber-harvest operations, but may be useful in mitigating past mistakes. Inside dimensions of nest boxes should be: bottom 8 x 8 inches (20 x 20 cm), front height 18 inches (46 cm), back height 20 inches (51 cm), and entrance hole 3.5 inches (9 cm). Place about 2 inches (5 cm) of wood chips and sawdust in the bottom of nest boxes. Hang nest boxes 15 to 30 feet (4.5 to 9.5 m) high after trimming all branches below box height. Face the nest box toward a small [at least 10 x 10 feet (3 x 3 m)] forest opening to provide a clear flight path to the box. Clean out nest boxes after each nesting season; nest boxes may be occupied in successive years, but only by new individuals and after box is cleaned.

White-throated Swift

Primary Habitat Type: Specialized (cliffs and canyons)

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
White-throated Swift (WTSW) <i>Aeronautes saxatalis</i> Level II M, K			~Nests in crevices in cliffs and canyon walls	~ Elevation <9,000 feet	~Nests in small colonies of up to a dozen pairs ~Nest site fidelity ~Will nest in buildings such as bell towers or grain elevators ~Winters south through Mexico to Honduras

Scattered throughout much of Wyoming in a variety of habitats with cliffs and canyons below 9,000 feet (2,750 m). Ranges over adjacent valleys and habitats within a few miles of the nest while foraging. Nests in deep cracks and crevices in steep, rocky, often inaccessible cliff faces or canyon walls, from 10 to 200 feet (3 to 60 m) above the base. Sometimes nests in cracks in high walls of buildings such as bell towers or grain elevators. Builds a nest of feathers and grasses glued together with saliva and attached to the sides of rock walls. Eggs (3 to 6, 21 mm) are white or creamy-white and unmarked. Feeds in flight, exclusively on flying insects. Generally forages high in the air over canyons or cliffs but will fly low over rivers and streams in pursuit of emerging aquatic insects. Winters south through Mexico to Honduras. Declines may be due to disturbance at nest sites, degradation of winter habitat, or pesticide exposure. Other species that may benefit from habitat management for this species include the Turkey Vulture, Golden Eagle, Peregrine Falcon, Common Raven, and Canyon Wren.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate White-throated Swifts have been detected on 23 BBS routes in Wyoming, including 6 routes on which they were observed a minimum of 3 years.
 - a) Maintain White-throated Swifts on the 23 BBS routes on which they were observed (Figure 25).
 - b) Maintain the average number of individuals observed per route over the past 5

years at a level equal to or above the average number of individuals observed during all years the route was run.

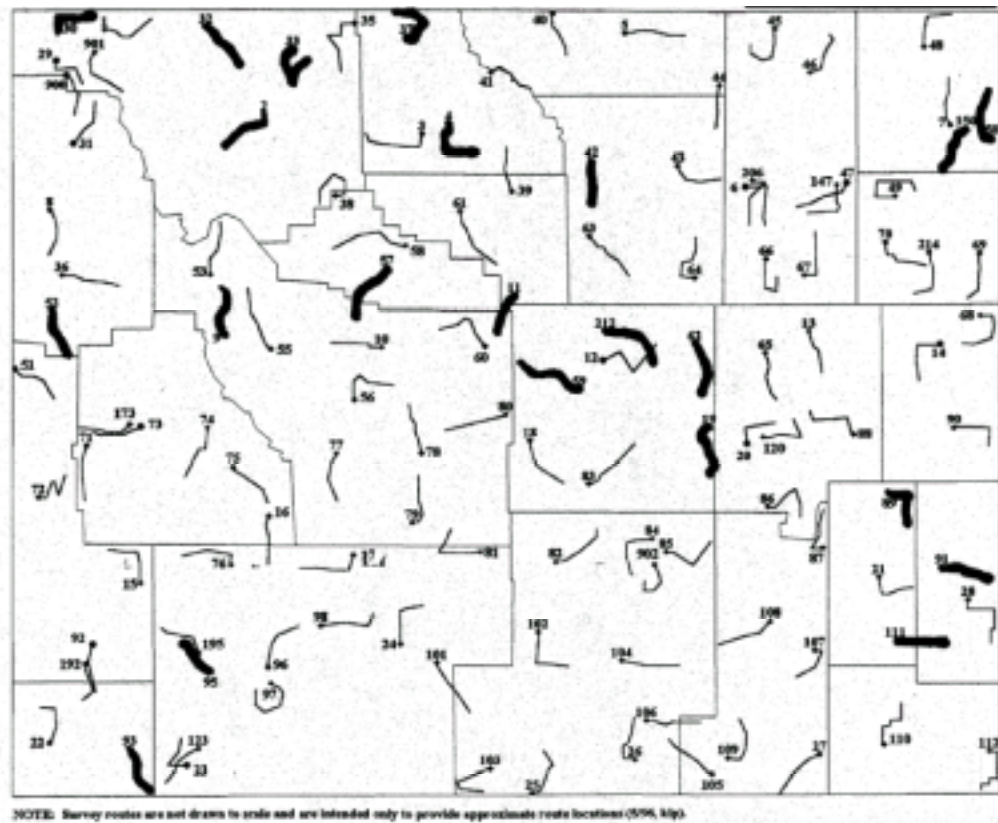


Figure 25. Bold lines indicate Breeding Bird Survey routes on which White-throated Swifts have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain cliffs and canyons for White-throated Swifts to use for nesting.

Recommendations

- 1) Avoid converting cliffs and canyons to other landforms.
- 2) Protect areas traditionally used by White-throated Swifts, as they will return to nesting sites in subsequent years.
- 3) Restrict human activities, such as intensive rock climbing, near White-throated Swift nests during the breeding season.

4) Avoid or minimize insecticide use in canyon habitats to maintain a food source for White-throated Swifts (and other insectivores). Postpone all insecticide use until White-throated Swifts and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Black-chinned Hummingbird

Black-chinned Hummingbird (*Archilochus alexandri*) would appear here based on priority, but this species is currently documented as a peripheral breeder in Wyoming, and will not be addressed in the Wyoming Bird Conservation Plan at this time. This species will likely be addressed in regional conservation plans.

Calliope Hummingbird

Primary Habitat Types: Mid Elevation Conifer and Montane Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Calliope Hummingbird (CAHU) <i>Stellula calliope</i> Level II M, R	~Meadows, parks, and thickets within conifers and alders ~Riparian corridors are important during migration	~May be most common in second growth after fire or logging (promotes flowers for feeding) ~Uses understory and midstory levels in the canopy	~Elevation 4,500 to 8,500 feet (data from Big Horn Mountains)	~Dead twigs for perching ~Edge effect important ~Early, mid, and late succession ~Patchy habitat	~Breeding restricted to Big Horn Mountains and NW Wyoming ~Usually responds negatively to grazing ~May feed at sapsucker wells ~Often reuses old nest ~Winters in Mexico

Found in all mountainous areas of Wyoming, although most sightings are from the western portion of the state. Frequents meadows and canyons, riparian aspen stands and willow thickets, and other shrubby areas within coniferous forests in the mountains. Prefers timbered stands near water with a low to intermediate canopy cover. Builds a small lichen and moss cup nest covered with spider's silk, from 2 to 70 feet (0.6 to 21 m) above ground on a branch with small knots of dead mistletoe or pine cones, which resemble the nest, frequently within riparian areas. May reuse old nest. Eggs (2, 12 mm) are white. Feeds mainly on nectar, preferably from red flowers, but also eats small insects and spiders. Winters in Mexico. Populations respond negatively to incompatible livestock grazing that eliminates or degrades vertical diversity needed for nesting and foraging. Other species that may benefit from habitat management for this species include the Harlequin Duck, Northern Goshawk, Williamson's Sapsucker,

Black-backed Woodpecker, Rufous Hummingbird, Three-toed Woodpecker, Cordilleran Flycatcher, Western Tanager, and Cassin's Finch.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Calliope Hummingbird in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Manage stands for an open to intermediate canopy cover to ensure growth of flowering plants as a food source for Calliope Hummingbirds.
- 2) Reduce impacts to flowering plants from recreation, grazing, and wildlife foraging.
- 3) Maintain conifer stands near water with low to intermediate canopy cover for Calliope Hummingbird nesting sites.

Recommendations

- 1) Implement forest management practices that encourage a variety of seral stages, including those that perpetuate some early successional plant communities.
- 2) Monitor impacts to flowering plants from recreation, grazing, and wildlife foraging and modify management, if necessary, to ensure flowering plants are available as a food source to Calliope Hummingbirds.

Broad-tailed Hummingbird

Primary Habitat Types: Montane Riparian, Plains/Basin Riparian, and Mid Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Broad-tailed Hummingbird (BTLH) <i>Selasphorus platycercus</i> Level II M	~Willow ~Cottonwood ~Aspen ~Ponderosa pine ~Engelmann spruce ~Subalpine fir ~Douglas-fir	~Overhanging branches ~Edge habitat associated with open meadows containing flowering plants	~Nests to treeline	~Nests near or over a stream	~Females show nest site fidelity ~Brightly colored electric fence insulators may be a problem ~Winters in Mexico and Central America

Found in most of the mountainous areas of Wyoming, although the state is on the northern limit of its breeding range. Inhabits meadows and patches of flowers within riparian shrub habitat, mixed conifer forests, and aspen stands, from 4,000 to 11,000 feet (1,200 to 3,400 m) in elevation. Sometimes ranges eastward onto the plains. A woven cup nest of downy materials, such as willow or cottonwood seeds, covered with bits of bark, fine rootlets, and lichen and held together with spider's silk is saddled on a large horizontal limb or small twig in a shrub near or over water in cottonwood, willow, aspen, Douglas-fir, ponderosa pine, subalpine fir, or other mixed-conifer forests. Nest is usually 4 to 15 feet (1.2 to 4.4 m) above ground. Eggs (2, 13 mm) are white. Feeds on nectar from a variety of flowers, but also eats small insects and spiders. Winters in Mexico. Loss of flowering plants due to incompatible livestock grazing is a concern. Other species that may benefit from habitat management for this species include the Rufous Hummingbird, Calliope Hummingbird, Willow Flycatcher, and Lincoln's Sparrow.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Broad-tailed Hummingbirds have been detected on 24 BBS routes in Wyoming, including 14 routes on which they were detected for a minimum of 3 years.
 - a) Maintain Broad-tailed Hummingbirds on the 24 BBS routes on which they were observed (Figure 26).

- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

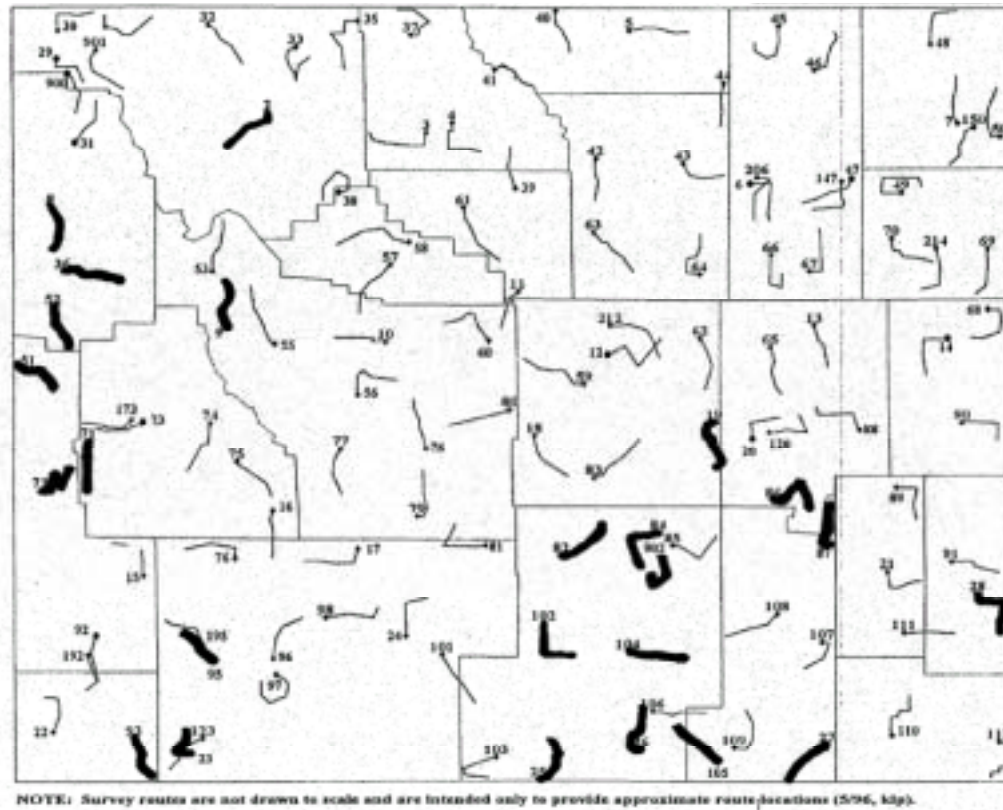


Figure 26. Bold lines indicate Breeding Bird Survey routes on which Broad-tailed Hummingbirds have been observed from 1968 through 2002.

Habitat Objectives

- 1) Provide preferred Broad-tailed Hummingbird nesting habitat near or over streams.
- 2) Provide edge habitat associated with open meadows containing flowering plants.
- 3) Reduce impacts to flowering plants from recreation, grazing, and wildlife foraging.

Recommendations

- 1) Implement riparian Best Management Practices that emphasize patches of flowering plants within plains/basin riparian habitat.
- 2) Eliminate incompatible livestock grazing and recreation in riparian habitat that adversely impacts the flowering plant component.

3) Monitor the impacts of wildlife foraging on flowering plants in riparian areas.

Rufous Hummingbird

Primary Habitat Type: Mid Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Rufous Hummingbird (RUHU) <i>Selasphorus rufus</i> Level II M	~Mixed conifers (spruce-fir-lodgepole pine; spruce-fir; lodgepole pine-fir), conifer/aspen (lodgepole pine-aspen), and willow/aspen ~Meadows, forest edges, and riparian thickets of coniferous woodlands	~Early successional, open shrub, and forested habitats			~Winters south to south-central Mexico

Found across Wyoming during migration, but nests only in the northwestern corner of the state because Wyoming is on the eastern limit of its breeding range. Nests in mixed forests of lodgepole pine, Douglas-fir, blue spruce, and aspen, and in riparian thickets within the forest. Builds a lichen-covered cup nest of plant down and spider's silk attached to a horizontal branch or drooping limb, from 1 to 15 feet (0.3 to 4.5 m) above ground. Nests are built in coniferous or deciduous trees, vines, or shrubs, and are often reused year after year. May nest in a loose colony of up to 10 nests. Eggs (2, 13 mm) are white. Feeds on nectar, insects, spiders, and tree sap. Winters south to south-central Mexico. Habitat alteration and simplification due to incompatible livestock grazing and recreation is a concern. Other species that may benefit from habitat management for this species include the Northern Goshawk, Cordilleran Flycatcher, Calliope Hummingbird, Cassin's Finch, and Western Tanager.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Rufous Hummingbird in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain a mosaic of mixed coniferous forests, meadows, and riparian shrub habitat in areas where Rufous Hummingbirds occur.

Recommendations

1) Inventory appropriate habitat to determine population and nesting status and specific habitat requirements of Rufous Hummingbirds in Wyoming.

Lewis' Woodpecker

Primary Habitat Types: Low Elevation Conifer and Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Lewis' Woodpecker (LEWO) <i>Melanerpes lewis</i> Level II M	~Cottonwood ~Ponderosa pine	~Snags of 15" dbh or greater ~Snag density ≥1 per 10 acres in either cottonwood or pine ~Dense understory – 30 to 50% in mid to upper-mid seral conditions ~High structure	~Elevation <8,500 feet	~Open stands of trees with snags ~Fire can be beneficial ~Both early and late succession ~Usually places nest on north to east facing slope	~Requires cavities for nesting ~Nests occur in clumps ~Responds negatively to incompatible livestock grazing ~ European Starlings and American Kestrels may compete for nest cavities ~Winters south to Mexico

Scattered throughout Wyoming; is very localized in suitable habitat. Inhabits open country with scattered trees; open or park-like ponderosa pine forests are probably the major breeding habitat. Attracted to burned out stands of Douglas-fir, mixed conifer, juniper, and riparian and oak woodlands, but is also found in deciduous forests, especially riparian cottonwoods. Prefers areas with a good understory of grasses and shrubs to support insect prey populations. Excavates a cavity nest from 20 to 25 feet (6 to 7.6 m) above ground in a live or dead tree or tall stump with an average dbh of 15 inches (38 cm). Favors ponderosa pine and cottonwood trees for nesting; requires a snag density of at least 1 per 10 acres (4 ha). Eggs (6 to 7, 26 mm) are white. Feeds on insects, nuts, conifer seeds, and berries either caught in the air or gleaned from the ground or tree bark. Winters from central Colorado south to northern and western

Mexico. Populations using riparian woodlands in arid and semiarid areas have greatly declined due to loss and degradation of these habitats by incompatible livestock grazing. Competition with European Starlings and American Kestrels for nest cavities may be another factor in population declines. Other species that may benefit from habitat management for this species include the Swainson's Hawk, Bald Eagle, American Kestrel, Hairy Woodpecker, Willow Flycatcher, Hammond's Flycatcher, Warbling Vireo, Northern Rough-winged Swallow, Red-breasted Nuthatch, Pygmy Nuthatch, Hermit Thrush, Western Tanager, and Lazuli Bunting.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Lewis' Woodpecker in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain snags of at least 15 inches (38 cm) dbh at a density of at least 1 snag per 10 acres (4 ha) in plains/basin cottonwood and low elevation forests statewide.

2) Maintain a dense understory, with 30 to 50% in mid to upper-mid seral conditions.

Recommendations

1) Implement riparian and forest Best Management Practices that emphasize maintaining snags in plains/basin riparian and low elevation conifer forest habitat.

2) Implement riparian and forest Best Management Practices that emphasize maintaining a grass/forb/shrub understory so insect prey is available.

3) Avoid timber harvesting and salvage logging in mature ponderosa pine forest and burned conifer forests where Lewis' Woodpeckers occur.

4) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Lewis' Woodpeckers (and other insectivores). Postpone all insecticide use until Lewis' Woodpeckers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

5) Do not encourage European Starlings to nest, and control, reduce, or remove European Starling populations where nesting cavity competition is a concern.

Williamson's Sapsucker

Primary Habitat Type: Mid Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Williamson's Sapsucker (WISA) <i>Sphyrapicus thyroideus</i> Level II M	~Mixed conifers (lodgepole pine; Douglas fir-spruce; lodgepole pine-spruce-fir; spruce) and tall aspens	~High structural layers ~Late succession		~Territory size of 10 acres per pair ~Trees with ≥ 10 inches dbh ~Oregon recommends 150 snags per 100 acres for maximum population	~Snags or live trees infected with heart rot fungi for cavity nest sites ~Winters south to north-central Mexico

Found in the mountainous areas of Wyoming where coniferous forests and stands of aspen dominate. Inhabits mixed conifer forests of lodgepole pine, Douglas-fir, and blue spruce, especially those that have burned, and stands of tall aspen trees. Excavates a cavity nest in conifer or aspen from 5 to 60 feet (1.5 to 18 m) above ground. May reuse a nesting tree, but chisels a new hole each time. Eggs (5 to 6, 24 mm) are white. Gleans insects, especially ants, and tree sap from tree trunks and branches. Winters south to north-central Mexico. May be declining due to loss of snags and live trees with dead heartwood for nesting habitat. Is threatened by harvesting of mature conifer stands and incompatible logging practices. Clearcuts remove habitat; however, selective logging may be compatible, depending on the area and methods used. Other species that may benefit from habitat management for this species include the Great Gray Owl, Hammond's Flycatcher, Hairy Woodpecker, Black-backed Woodpecker, and Three-toed Woodpecker.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Williamson's Sapsucker in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain mature stands of mixed conifer and aspen forests in areas where Williamson's Sapsuckers occur.

2) Maintain forest stands of trees with a minimum dbh of 10 inches (25 cm) in areas where Williamson's Sapsuckers occur.

3) Maintain an average to maximum snag density of 0.05 to 1.5 snags per acre (0.1 to 4 per ha) in areas where Williamson's Sapsuckers occur.

Recommendations

1) Due to a lack of information on this species, determine additional habitat requirements through inventory, monitoring, and research.

2) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Williamson's Sapsuckers (and other insectivores). Postpone all insecticide use until Williamson's Sapsuckers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Red-naped Sapsucker

Primary Habitat Type: Aspen

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Red-naped Sapsucker (RNSA) <i>Sphyrapicus nuchalis</i> Level II M	~Occurs primarily in aspen forests or in coniferous forests where aspen is present ~Prefers aspen for nesting	~Mid to late seral stage ~Strongly associated with mature aspen ~Nest tree dbh ≥9 inches ~Nests 3 to 35 feet above ground	~Elevation 5,000 to 9,000 feet	~Territory size 5 to 12 acres ~Fire can be beneficial ~Late succession	~Excavates cavities for nesting in dead or live trees with heartrot ~Nest tree fidelity; excavates new nest each year, but often in same tree for several years ~Keystone species: creates nest cavities and sap wells that are used by other birds, mammals, and insects ~Winters south to Central America

Found in the mountainous areas of Wyoming where coniferous forests and stands of aspen dominate. Inhabits mixed conifer forests with aspen and montane riparian woodland, but is most strongly associated with mature aspen (especially riparian) woodland. Excavates a cavity nest in a snag or a living tree with a dead or rotten interior; shows a strong preference for aspen. Nests 3 to 35 feet (0.9 to 10.6 m) above ground in a tree of at least 9 inches (23 cm) dbh. Shows strong fidelity to nest tree, but chisels a new hole each year. Eggs (4 to 5, 24 mm) are white. Feeds primarily on insects (particularly ants), captured by bark-gleaning and by drilling into trees; also consumes sap and pitch, occasionally fruit, acorns, and berries. Relies heavily on sap from conifers as a food source upon arrival in spring; uses sap of aspen and birch only after buds open on the trees. Also sallies from perch to hawk insects in a flycatcher-like fashion. Winters south to Central America. May be declining due to loss of snags and live aspen with dead heartwood for nesting habitat. Sustaining populations requires maintaining, enhancing, and restoring snags, riparian woodlands, and stands of aspen adjacent to coniferous forest. Although decadent aspen may be beneficial in the short term, lack of regeneration will adversely affect the species in the long term. Will use forest edges and logged forests but extensive clearcuts or the removal of snags and preferred tree species would be detrimental. Also will use burns, partially-cut forest and small clearcuts where snags and live hardwood trees remain and adjacent forest is available for foraging. Other species that may benefit from habitat management for this species include the Downy Woodpecker, Hairy Woodpecker, Williamson's Sapsucker, Tree Swallow, Mountain Bluebird, Black-capped Chickadee, Mountain Chickadee, Western Wood-Pewee, Warbling Vireo, House Wren, and American Kestrel.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Red-naped Sapsuckers have been detected on 36 BBS routes in Wyoming, including 22 on which they were observed a minimum of 3 years.
 - a) Maintain Red-naped Sapsuckers on the 36 BBS routes on which they were observed (Figure 27).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

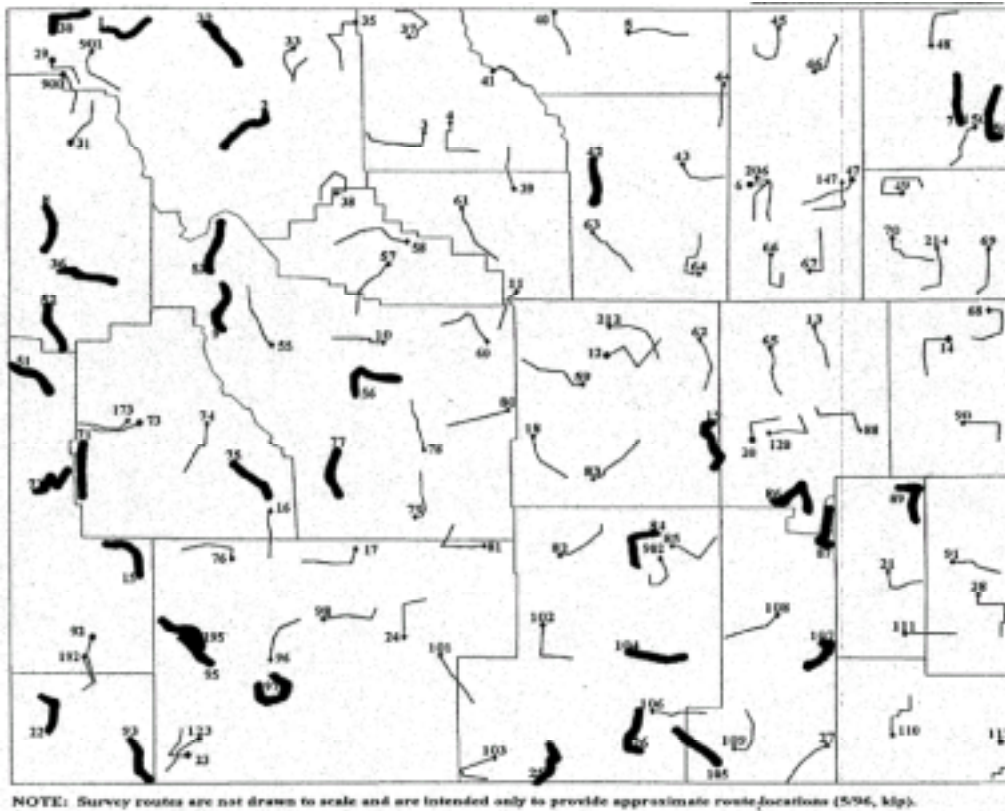


Figure 27. Bold lines indicate Breeding Bird Survey routes on which Red-naped Sapsuckers have been observed from 1968 through 2002.

Habitat Objectives

1) Maintain an average snag density of 150 snags greater than 10 inches (25 cm) dbh per 100 acres (40 ha) in areas where Red-naped Sapsuckers occur.

Recommendations

- 1) Survey for nesting trees before habitat manipulation. Identify and maintain existing nest stands.
- 2) In areas where Red-naped Sapsuckers occur, implement aspen management practices that enhance diverse age classes at the landscape scale, with adequate representation of mature stands and old growth.
- 3) Maintain disturbance regimes, natural and mechanical, and the dynamic nature of aspen communities on a landscape scale. Where natural disturbance mechanisms cannot be reintroduced, mechanical disturbance events should mimic, as closely as possible, the disturbance history of the local area and surrounding habitats.

- 4) Implement aspen management practices that emphasize maintaining snags suitable for Red-naped Sapsuckers in aspen habitat.
- 5) Manage all understory and adjacent communities, especially riparian, to maintain diversity and variety.
- 6) Implement woodland practices that encourage oak survival where it occurs to enhance feeding and nesting for Red-naped Sapsuckers.
- 7) Retain downed logs and woody debris as sources of insect food for Red-naped Sapsuckers.
- 8) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Red-naped Sapsuckers (and other insectivores). Postpone all insecticide use until Red-naped Sapsuckers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Three-toed Woodpecker

Primary Habitat Types: Mid Elevation Conifer and High Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Three-toed Woodpecker (TTWO) <i>Picoides tridactylus</i> Level II M	~Mixed conifers (lodgepole pine-spruce; lodgepole pine-spruce-fir; spruce-fir) ~Burned conifer forests	~Post-fire with large stands of dead trees	~Use of burned areas declines 3 to 5 years post-burn	~Optimal habitat includes areas with 42 to 52 snags per 100 acres, occurring in clumps, with 12 to 16 inches dbh, 20 to 40 feet tall, and mostly with bark still present	~Fire dependent ~ Snags, partially dead trees, or live trees infected with heart rot fungi for cavity nest sites ~Feeds primarily (75%) on wood-boring insects found on dying or recently dead lodgepole pine and Engelmann spruce ~Abundance of prey may cause population irruption ~Is a year-round resident in Wyoming

Scattered across Wyoming in coniferous forests (except in the eastern 1/3 of the state). Inhabits mixed conifer forests of lodgepole pine, Douglas-fir, blue spruce, and Englemann spruce-subalpine fir, especially those forests that have burned. Excavates a cavity nest in a conifer from 5 to 50 feet (1.5 to 15 m) above ground. Prefers snags at least 12 inches (30 cm) dbh and at least 15 feet (4.5 m) in height. Requires snag densities at 1 per 5 to 7 acres (2 to 3 ha). Clumping of snags may be beneficial. Eggs (4, 23 mm) are white. Feeds on insects, especially the larvae of wood-boring insects, and tree sap gleaned from tree trunks and branches. Is a year-round resident in Wyoming. Habitat loss due to logging of mature/old growth forests, salvage logging of post-fire stands, and urbanization is a concern. Other species that may benefit from habitat management for this species include the Williamson's Sapsucker, Black-backed Woodpecker, Clark's Nutcracker, Western Tanager, Northern Goshawk, Great Gray Owl, and Mountain Chickadee.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Three-toed Woodpecker in Wyoming. Determine population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

Habitat Objectives

1) Maintain dense forests of mature/old growth mixed conifers with an element of disturbance (e.g. burned, beetle-killed, or cutover) that leaves numerous decadent trees, snags, and fallen logs.

2) Retain larger diameter trees [at least 12 inches (30 cm) dbh] for cavity nest sites and retain all trees with existing nest cavities.

3) Prevent Three-toed Woodpecker habitat loss due to fire suppression, loss of mature and old growth forests, and removal of snags and insect-infested trees.

4) On a landscape scale, provide a continual supply (1 to 2% of the landscape) of recent stand replacement fires greater than 100 acres (40 ha) in size, with at least 50% of that total unsalvaged after burning.

Recommendations

1) On a 3- to 5-year rotational basis, provide for the type of disturbances (e.g. fire or pathogenic producing) that provides a source of food and nest sites in mature and old growth mixed conifer forests in areas where Three-toed Woodpeckers occur.

2) In recently burned coniferous forests, refrain from salvage logging for up to six years post-burn or until wood-boring insects decline.

3) To provide optimal habitat for Three-toed Woodpeckers, provide areas in mature/old growth mixed conifer forests that include clumps of 42 to 52 snags per 100 acres (40 ha) that are 12 to 16 inches (30 to 41 cm) dbh and 20 to 40 feet (6 to 12 m) tall, with most of the bark still present.

4) Implement forest management practices in areas where Three-toed Woodpeckers occur that retain all trees with nest cavities; retain snags in harvested areas; retain mature trees and a mix of healthy and diseased trees for nest sites; retain some tall, hard, dead trees for drumming sites; and retain patches of trees in a variety of decay stages for foraging, especially insect host trees and those susceptible to future insect occupancy.

- 5) Where salvage logging of burns is inevitable, remove trees from one area of the burn only, leaving another representative area intact that retains the full complement of snag dimensions for Three-toed Woodpeckers and other post-fire dependent species.
- 6) Avoid or minimize insecticide use in forest habitats to maintain a food source for Three-toed Woodpeckers (and other insectivores). Postpone all insecticide use until Three-toed Woodpeckers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.
- 7) Due to incomplete information on this species, determine additional habitat requirements through inventory, monitoring, and research. In particular, more detailed information is needed on habitat use, diet, required snag density, and response to land management activities, especially forest harvest patterns and changes in fire regimes.

Black-backed Woodpecker

Primary Habitat Types: Mid Elevation Conifer and High Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Black-backed Woodpecker (BBWO) <i>Picoides arcticus</i> Level II M	~Mixed conifers (spruce, fir, Douglas-fir, lodgepole pine)	~Burned forests and dense forests of mature/old growth ~Burned, swampy, cut-over, or beetle-killed where dead trees are numerous	~Highly responsive to processes (e.g. fire, spruce budworm outbreaks) that result in high concentrations of wood-boring insects invading dead trees ~Use of burned areas declines 3 to 5 years post-burn	~May require a dynamic mosaic of recent burns across a landscape to sustain populations ~Trees with ≥ 8 inches dbh	~Fire dependent ~Snags, partially dead trees, or live trees infected with heart rot fungi for cavity nest sites ~Abundance of prey may cause population irruption ~Is a year-round resident in Wyoming

Currently nests only in the northwest and northeast corners of Wyoming. Is a fire dependent species that prefers mixed conifer forests of lodgepole pine, Douglas-fir, blue spruce, and Englemann spruce-subalpine fir, especially forests that have recently burned. Excavates a cavity nest in a conifer snag, partially dead conifer, or live conifer with dead heartwood, usually 2 to 15 feet (0.6 to 4.5 m) above ground. Eggs (4, 22 mm) are white. Feeds mostly on ants and the larvae of wood-boring insects gleaned from tree trunks and branches. Is a year-round resident in Wyoming. Habitat loss due to logging of mature/old growth forests, salvage logging of post-fire stands, and

urbanization is a concern. Other species that may benefit from habitat management for this species include the Three-toed Woodpecker, Great Gray Owl, Northern Goshawk, Hammond's Flycatcher, Williamson's Sapsucker, Clark's Nutcracker, Mountain Chickadee, Western Tanager, and Cassin's Finch.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Black-backed Woodpecker in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain dense forests of mature/old growth mixed conifers with an element of disturbance (e.g. burned, beetle-killed, or cutover) that leaves numerous decadent trees, snags, and fallen logs.

2) Retain larger diameter trees [at least 8 inches (20 cm) dbh] for cavity nest sites and retain all trees with existing nest cavities.

3) Prevent Black-backed Woodpecker habitat loss due to fire suppression, loss of mature and old growth forests, and removal of snags and insect-infested trees.

4) On a landscape scale, provide a continual supply (1 to 2% of the landscape) of recent stand replacement fires greater than 100 acres (40 ha) in size, with at least 50% of that total unsalvaged after burning.

Recommendations

1) On a 3- to 5-year rotational basis, provide for the type of disturbances (e.g. fire or pathogenic producing) that provides a source of food and nest sites in mature and old growth mixed conifer forests in areas where Black-backed Woodpeckers occur.

2) In recently burned conifer forests, refrain from salvage logging for up to six years post-burn or until wood-boring insects decline.

3) To sustain Black-backed Woodpecker populations, establish management areas of 1,000 acres (405 ha) in preferred habitat, with no salvage sales allowed.

4) Implement forest management practices in areas where Black-backed Woodpeckers occur that retain all trees with nest cavities; retain snags in harvested areas; retain mature trees and a mix of healthy and diseased trees for nest sites; retain some tall,

hard, dead trees for drumming sites; and retain patches of trees in a variety of decay stages for foraging, especially insect host trees and those susceptible to future insect occupancy.

5) Where salvage logging of burns is inevitable, remove trees from one area of the burn only, leaving another representative area intact that retains the full complement of snag dimensions for Black-backed Woodpeckers and other post-fire dependent species.

6) Avoid or minimize insecticide use in forest habitats to maintain a food source for Black-backed Woodpeckers (and other insectivores). Postpone all insecticide use until Black-backed Woodpeckers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

7) Due to incomplete information on this species, determine additional habitat requirements through inventory, monitoring, and research. In particular, more detailed information is needed on habitat use, diet, required snag density, and response to land management activities, especially forest harvest patterns and changes in fire regimes.

Olive-sided Flycatcher

Primary Habitat Types: High Elevation Conifer and Mid Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Olive-sided Flycatcher (OSFL) <i>Contopus cooperi</i> Level II M, K	~Coniferous, riparian, and aspen forests	~Tall conifers ~Post-fire forests with tall snags ~Open forest structure with low percentage of canopy cover ~Forest openings and edges near meadows, wetlands, canyons, and rivers		~Elevation 8,000 feet to timberline	~Feeds exclusively on insects that can be caught in the air ~Rare cowbird host ~Winters in Central and South America

Scattered throughout central and western Wyoming in mature coniferous, riparian, and aspen forests from 8,000 feet (2,500 m) to timberline. Is dependent on burned areas, as it requires tall snags or high, conspicuous dead branches for foraging and singing perches and prefers open stands with a low percentage of canopy cover. Is often associated with forest openings and edges near meadows, wetlands, canyons, and rivers. Builds a well-concealed cup nest of twigs and rootlets, lined with pine needles,

moss, and lichen. Hides nest in a cluster of needles and twigs on a horizontal branch of a conifer, well away from the trunk, usually 15 to 50 feet (5 to 15 m) above ground. Eggs (3 to 4, 22 mm) are white, buff, or pale salmon, lightly but clearly marked (often wreathed) with brown or olive. Is a rare cowbird host. Feeds exclusively on insects that can be caught in the air; flies out from exposed perches high in the tops of conifers. Winters in montane South and Central America. Loss of winter habitat may be an important contributor to its decline. Fire suppression throughout the breeding range limits the acreage of suitable habitat. Other species that may benefit from habitat management for this species include the Black-backed Woodpecker, Three-toed Woodpecker, Townsend's Solitaire, and Mountain Bluebird.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Olive-sided Flycatchers have been detected on 23 BBS routes in Wyoming, including 12 routes on which they were observed a minimum of 3 years.
 - a) Maintain Olive-sided Flycatchers on the 23 BBS routes on which they were observed (Figure 28).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

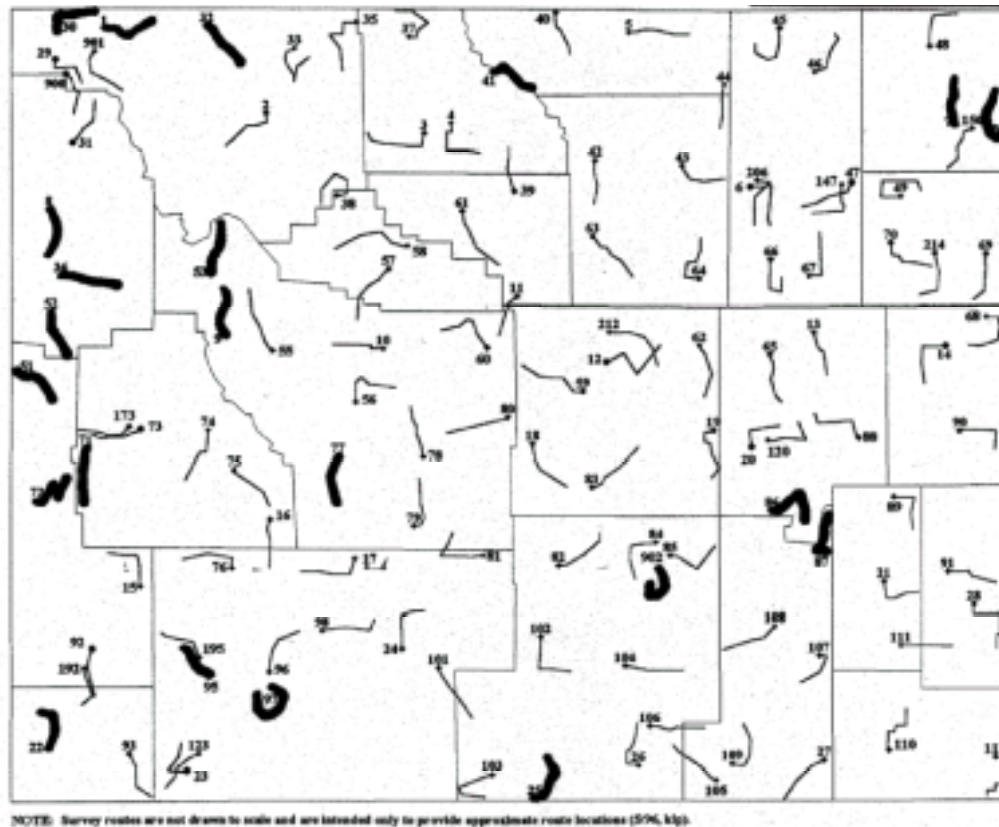


Figure 28. Bold lines indicate Breeding Bird Survey routes on which Olive-sided Flycatchers have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain an open forest structure with tall snags in areas where Olive-Sided Flycatchers occur.

Recommendations

- 1) Implement forest management practices in areas where Olive-sided Flycatchers occur that retain snags and large trees to provide important foraging and singing perches. Leave the tallest trees and snags when implementing salvage cuts after fires, insect outbreaks, or blowdowns; exclude some affected areas entirely from salvage cutting.
- 2) Allow wildfires to burn and use prescribed fire to create an open stand structure and tall snags in areas where Olive-sided Flycatchers occur.
- 3) Use timber harvest methods and treatments that create forest openings with tall trees and snags around the margins, create a relatively open canopy closure, create forested edge habitat around riparian and wetland features, retain trees of varying heights to

provide nesting sites, and retain trees near or above the surrounding canopy to provide perches for foraging.

4) Encourage the recovery of beaver populations to provide forest openings and pond shore habitat with tall snags.

5) Avoid or minimize insecticide use in forest habitats to maintain a food source for Olive-sided Flycatchers (and other insectivores). Postpone all insecticide use until Olive-sided Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Willow Flycatcher

Primary Habitat Types: Montane Riparian and Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Willow Flycatcher (WIFL) <i>Empidonax traillii</i> Level II M	~Willow ~Alder ~Cottonwood ~Hawthorn ~Water birch	~Low structure	~Elevation <10,000 feet	~Thickets associated with open stands ~Early to mid succession ~Vegetation must be near water ~About 5 acres needed per breeding pair	~Riparian obligate ~Common cowbird host ~Populations increase with decreased livestock grazing and no poisoning or removal of willows ~Winters in Mexico and Central America

Scattered throughout the mountains of Wyoming where it is closely tied to river bottoms. Is a riparian obligate that uses willow or alder thickets along streams, especially where streams are bordered by open stands of cottonwoods. Also found in brushy fields, and along edges of bogs, thickets, or groves of small trees in grasslands. Builds a loosely woven cup nest of plant down and fibers in a horizontal fork or upright crotch on the outside edge of a low shrub or tree, 1 to 5 feet (0.3 to 1.5 m) above the ground. Eggs (3 to 4, 18 mm) are buff with brown spots near the large end. Is a common cowbird host; occasionally responds by burying the cowbird egg in the bottom of the nest. Feeds on flying insects caught in the air. Winters in Mexico and Central America. Population declines in the West are due to a combination of riparian habitat degradation by incompatible livestock grazing and heavy nest parasitism by cowbirds. Deforestation on the wintering grounds may also threaten population stability.

Populations increase in response to a reduction in cattle grazing and cessation of willow control in riparian habitats. Recreational activities in riparian areas can reduce habitat quality. Other species that may benefit from habitat management for this species include the Harlequin Duck, MacGillivray's Warbler, Wilson's Warbler, Song Sparrow, Lincoln's Sparrow, Warbling Vireo, Dark-eyed Junco, Yellow-breasted Chat, Common Yellowthroat, Lazuli Bunting, and Blue Grosbeak.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Willow Flycatchers have been detected on 43 BBS routes in Wyoming, including 20 routes on which they were observed a minimum of 3 years.
 - a) Maintain Willow Flycatchers on the 43 BBS routes on which they were observed (Figure 29).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

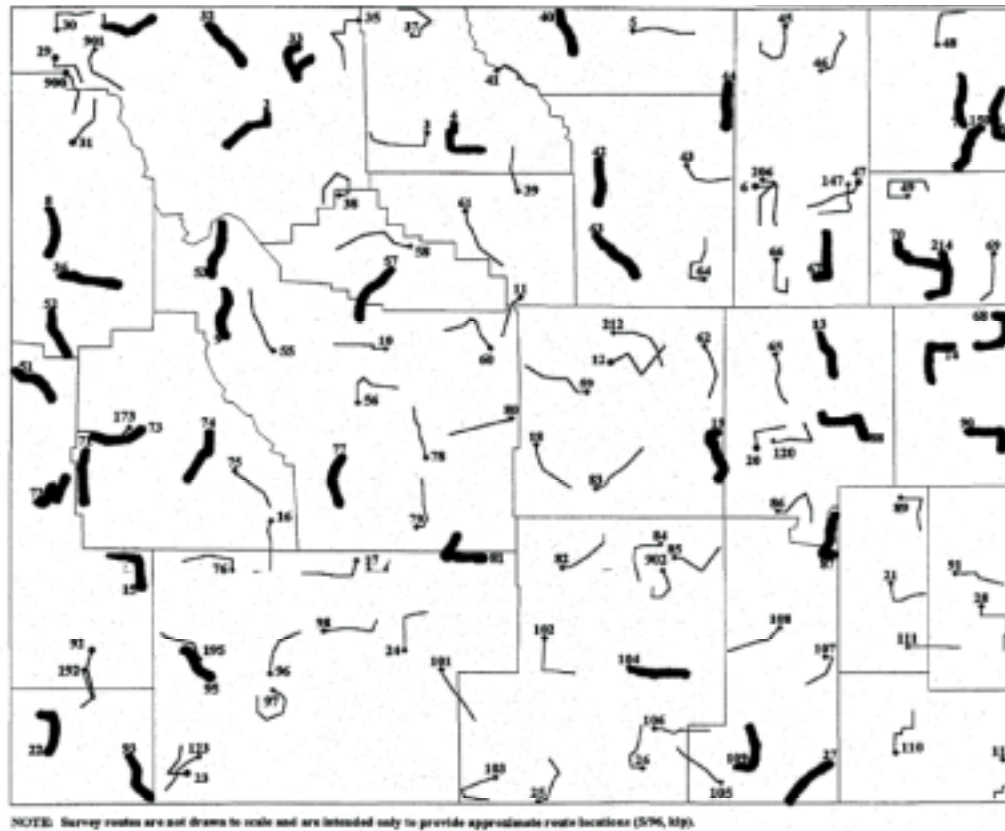


Figure 29. Bold lines indicate Breeding Bird Survey routes on which Willow Flycatchers have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain habitat patches greater than 5 acres (2 ha) in size to facilitate Willow Flycatcher nesting success.
- 2) Provide 50 to 75% shrub cover in areas where Willow Flycatchers occur.

Recommendations

- 1) Manage for a diversity of woody vegetation near water and open stands of cottonwoods.
- 2) Minimize recreational activities in riparian habitat where Willow Flycatchers breed.
- 3) Avoid or minimize insecticide use in riparian habitats to maintain a food source for Willow Flycatchers (and other insectivores). Postpone all insecticide use until Willow

Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

4) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Hammond's Flycatcher

Primary Habitat Types: High Elevation Conifer, Aspen, and Montane Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Hammond's Flycatcher (HAFL) <i>Empidonax hammondi</i> Level II M	~Conifers ~Aspen ~Willow riparian	~High structure ~Well-developed ground cover	~Elevation >6,500 feet	~Late succession ~Old stands (80 to 90 years) of >25 acres	~May be adversely affected by logging ~Nests high in canopy ~Winters in Mexico and Central America

Found in the western and south-central mountains of Wyoming. Inhabits tall, moist, closed-canopy montane conifer forests, sometimes with deciduous understory, such as aspen. Nest site is cool and well shaded. Builds a cup nest of bark strips, grasses, and plant down lined with hair, moss, and feathers in the fork of a small tree or on a horizontal branch of a large conifer or deciduous tree, usually 25 to 40 feet (7.6 to 12 m) above ground. Eggs (3 to 4, 18 mm) are creamy white. Feeds exclusively on insects, usually flying insects caught in the air, in the middle portions of tall conifers and aspens. Winters in southern Arizona, Mexico, and Central America. Logging may adversely affect this species by removing nesting habitat and altering microsite climate. Other species that may benefit from habitat management for this species include the Northern Goshawk, Black-backed Woodpecker, Blue Grouse, Clark's Nutcracker, Mountain Chickadee, Western Tanager, and Cassin's Finch.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Hammond's Flycatcher in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain dense coniferous forests that are well shaded with a deciduous/aspen component in higher elevations where Hammond's Flycatchers occur.

Recommendations

- 1) Leave stands of mature and climax conifers adjacent to aspen groves in higher elevations where Hammond's Flycatchers occur.
- 2) Avoid or minimize insecticide use in riparian areas to maintain a food source for Hammond's Flycatchers (and other insectivores). Postpone all insecticide use until Hammond's Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Gray Flycatcher

Primary Habitat Types: Juniper Woodland and Mountain-foothills Shrub

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Gray Flycatcher (GRFL) <i>Empidonax wrightii</i> Level II M	~Juniper woodlands; tall sagebrush; and arid, very open pine woods	~Mature woodlands with intermediate grass cover and tree height, and moderate amounts of juniper regeneration ~High canopy cover ~High density of senescent trees ~Dead limbs for sallying perches and song posts	~Low elevation ~Semi-arid	~Occurs in stands of less than 2.5 acres, but not in such stands isolated from larger stands by 0.6 mile or more	~Feeds exclusively on insects ~May be limited by the presence of pinyon pine in Wyoming ~Frequent cowbird host ~Winters south to central Mexico

Scattered across central and southwestern Wyoming in juniper woodlands and adjacent sagebrush. Inhabits semi-arid woodlands and brushy areas. Occupies a wide range of conditions within mature juniper woodlands in areas where the canopy cover is high; is more abundant in low elevation than in high elevation woodlands. Prefers stands with large, decadent or dead trees, which it uses for sallying perches and song posts. Builds a cup nest of bark, plant down, weed stems, and grass, lined with feathers

and hair, in a crotch of juniper or sagebrush, or near the base of a thornbush, from 2 to 9 feet (0.6 to 2.7 m) above ground. Sometimes nests in loose colonies. Eggs (3 to 4, 18 mm) are creamy-white and unmarked. Is a frequent cowbird host. Feeds exclusively on insects. Forages in the spaces between shrubs. Flycatches close to the ground, sallying out from the tops of shrubs and trees. Also catches and gleans insects from the ground and low plants. Winters south to central Mexico. Has a relatively high tolerance for habitat disturbance, but is vulnerable to clearing and fragmentation of juniper woodlands. Occurs in stands of less than 2.5 acres (1 ha), but not in such stands isolated from larger stands by 0.6 mile (1 km) or more. Reproduction may be confined to the juniper vegetation type in Wyoming, and possibly limited by the presence of pinyon pine. Other species that may benefit from habitat management for this species include the Ash-throated Flycatcher, Western Scrub-Jay, Pinyon Jay, Juniper Titmouse, and Bewick's Wren.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Gray Flycatcher in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Maintain large, non-fragmented stands of mature juniper woodlands.
- 2) Maintain large-statured sagebrush adjacent to juniper woodlands.
- 3) Maintain pinyon pine stands wherever they occur in southern Wyoming.

Recommendations

- 1) Implement woodland management practices that provide continuous, non-fragmented stands of juniper woodlands where Gray Flycatchers occur.
- 2) Implement woodland management practices that leave large, decadent, or dead trees intact for sallying perches and song posts in areas where Gray Flycatchers occur.
- 3) In areas where chaining for forage improvement occurs, limit clearing widths to 650 feet (200 m), use light chain or cable, and cease chaining during winter.
- 4) Implement woodland management practices that encourage pinyon pine survival wherever it occurs.

5) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Gray Flycatchers (and other insectivores). Postpone all insecticide use until Gray Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

6) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Dusky Flycatcher

Primary Habitat Types: Low Elevation Conifer, Aspen, and Mountain-foothills Shrub

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Dusky Flycatcher (DUFL) <i>Empidonax oberholseri</i> Level II M	~Ponderosa pine-savannah, aspen, mountain-foothills shrub, riparian shrub	~Open canopy ~Nests 2 to 15 feet above ground in low trees or shrubs ~High percentage cover of ground vegetation		~Presence of water not a nest site requirement ~Early succession ~Favors brushy, cutover slopes	~Feeds exclusively on insects ~Rare cowbird host ~Winters south to southern Mexico

Scattered across most of Wyoming in a wide range of open woodland and shrub habitats, including ponderosa pine savannah, pine-juniper, aspen, cottonwood-riparian, woodland chaparral, and riparian shrub. Found in early successional forests that have a well-developed shrub layer and sunlight penetration; generally avoids forests with a high percentage of canopy cover. Prefers thinned coniferous forests and brushy, cutover slopes. Builds a cup nest of weed stems, grass, feathers, and hair in a crotch of juniper or sagebrush, or near the base of a thorny shrub, usually 3 to 7 feet (1 to 2 m) above ground. Eggs (3 to 4, 18 mm) are white and unmarked. Is a rare cowbird host. Feeds exclusively on insects. Forages low over shrubby vegetation for flying insects. Winters south to southern Mexico. Other species that may benefit from habitat management for this species include the Lincoln's Sparrow, MacGillivray's Warbler, Wilson's Warbler, Lazuli Bunting, Orange-crowned Warbler, Mountain Bluebird, Tree Swallow, Western Wood-Pewee, and American Kestrel.

Population Objectives

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Dusky Flycatchers

have been detected on 30 BBS routes in Wyoming, including 19 on which they were observed a minimum of 3 years.

- a) Maintain Dusky Flycatchers on the 30 BBS routes on which they were observed (Figure 30).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

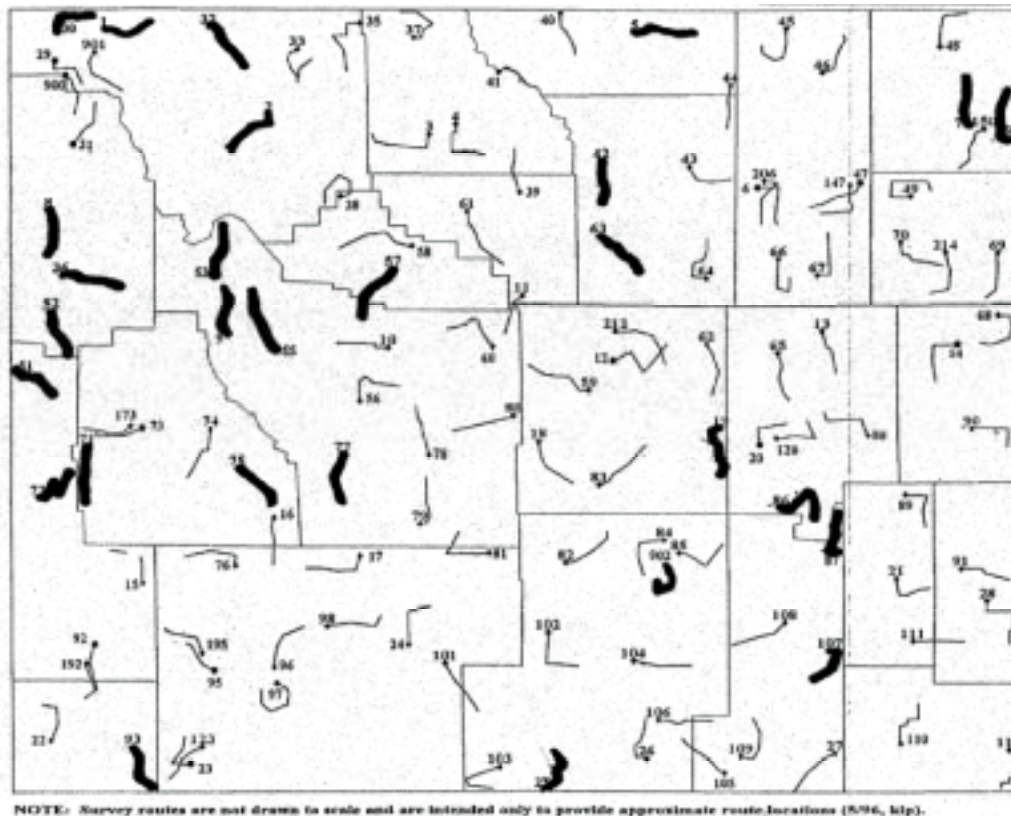


Figure 30. Bold lines indicate Breeding Bird Survey routes on which Dusky Flycatchers have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain open canopies in areas where Dusky Flycatchers nest.
- 2) Maintain plant species diversity in areas where Dusky Flycatchers nest.

Recommendations

- 1) Manage for diverse shrub understories in open forest stands.

2) Implement aspen management practices that provide diverse age classes and species in aspen stands.

3) Avoid or minimize insecticide use in aspen and shrubland habitats to maintain a food source for Dusky Flycatchers (and other insectivores). Postpone all insecticide use until Dusky Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Cordilleran Flycatcher

Primary Habitat Types: Montane Riparian and Mid Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Cordilleran Flycatcher (COFL) <i>Empidonax occidentalis</i> Level II M	~Conifers ~Aspen ~Especially near water	~Both low and high structure ~Dense canopy closure and shady conditions ~Forages beneath tree crowns ~>2 snags per acre	~Drainages important to create cool microclimate	~Trees of mid to late succession	~Winters in Mexico and Central America

Found throughout most of the mid elevation mountains of Wyoming in a variety of wooded habitats, but prefers moist, shaded forests. Also inhabits canyon bottoms and riparian woodlands. Requires a sheltered nest site near water. Builds a moss-lined cup nest of small twigs and rootlets in a variety of sites including a cavity in a small tree, streambank, roots of an upturned tree, cliff ledge, and building eaves. Nests from ground level up to 30 feet (9 m) above ground. Eggs (3 to 4, 17 mm) are white to creamy and spotted with brown. Is a rare cowbird host. Feeds mainly on insects and spiders caught in the air or gleaned while hovering, but also eats a few seeds. Winters in Mexico. Is negatively affected by loss of mid to late successional tree stands due to logging, fire, and development. Other species that may benefit from habitat management for this species include the Northern Goshawk, Calliope Hummingbird, Williamson's Sapsucker, Black-backed Woodpecker, Three-toed Woodpecker, Warbling Vireo, and Cassin's Finch.

Population Objectives

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Cordilleran Flycatchers have been detected on 31 BBS routes in Wyoming, including 14 routes on which they were observed a minimum of 3 years.

- a) Maintain Cordilleran Flycatchers on the 31 BBS routes on which they were observed (Figure 31).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

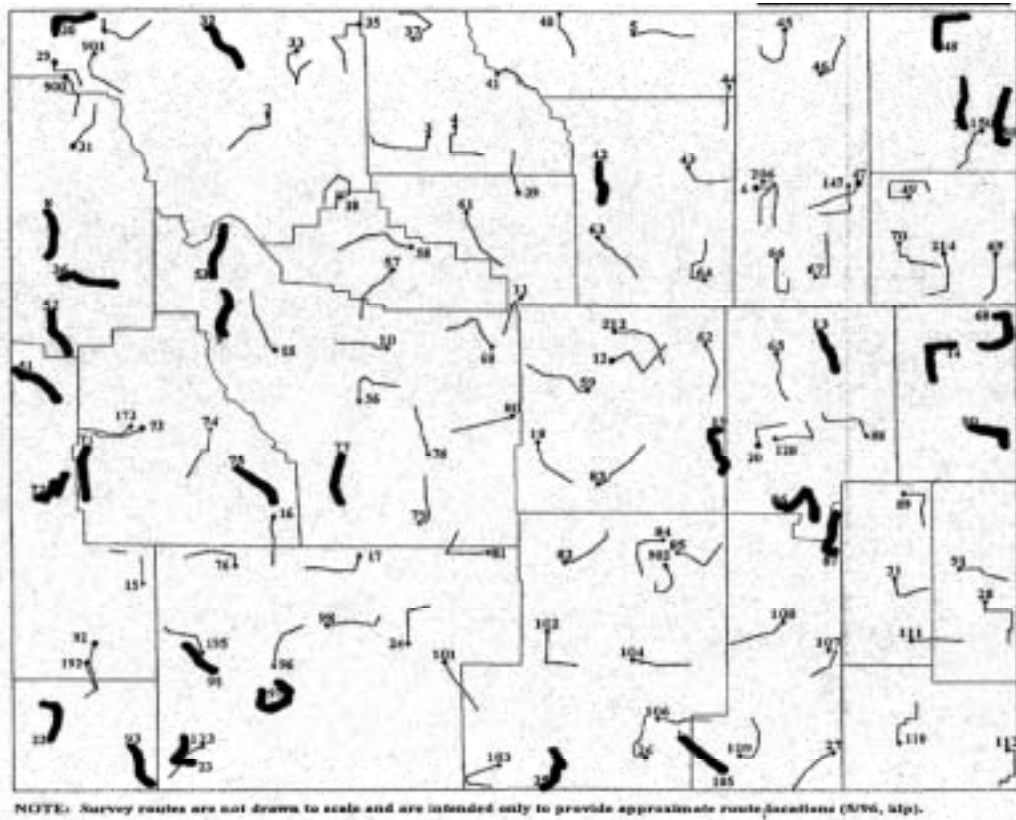


Figure 31. Bold lines indicate Breeding Bird Survey routes on which Cordilleran Flycatchers have been observed from 1968 through 2002.

Habitat Objectives

1) Where Cordilleran Flycatchers occur, manage coniferous forests to include trees of mid to late succession; greater than 2 snags per acre (5 per ha); diverse plant structure; and moist, shaded microsites, including sheltered sites near water for nesting.

Recommendations

- 1) Implement forest management practices that provide moist, shaded microsites and a variety of seral stages, especially moderately old and older trees with dense canopy closure, for Cordilleran Flycatcher foraging and nesting sites.
- 2) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.
- 3) Avoid or minimize insecticide use in riparian areas to maintain a food source for Cordilleran Flycatchers (and other insectivores). Postpone all insecticide use until Cordilleran Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Ash-throated Flycatcher

Primary Habitat Type: Juniper Woodland

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Ash-throated Flycatcher (ATFL) <i>Myiarchus cinerascens</i> Level II M	~Pine-juniper and juniper	~Open canopy of old growth juniper ~Sparse understory ~High density of snags ~Trees <16 feet in height	~Rock outcrops	~Steep topography such as rocky mesas and canyon lands ~Benefits by habitat interspersions ~Lower elevation juniper woodlands	~Requires cavities for nesting ~Will use nest boxes ~In Wyoming, is dependent on the southwestern juniper community ~Winters south to northeast Costa Rica

Currently nests only in the juniper woodlands of southwestern Wyoming. Individuals found in Wyoming outside of the southwest corner are usually migrating. Typically found on steep, rocky slopes sparsely covered by old growth juniper, a sparse understory, and an abundance of snags. More abundant in lower elevation juniper woodlands. Nests in a natural cavity, old woodpecker cavity, or hole in a fence post, 3 to 20 feet (1 to 6 m) above ground. Will use nest boxes. Builds a soft nest of hair, fur, feathers, grass, and occasionally snakeskin. Eggs (4 to 5, 22 mm) are creamy, marked with brown, purple, or olive. Takes a wide variety of insects by hover-gleaning, hawking, and ground-gleaning. Usually flies out from a perch to capture an insect,

then lands on a different perch. Also eats small fruits and seeds. Winters south to northeast Costa Rica. Is vulnerable to extirpation in Wyoming because its required habitat is restricted in the state. Could be threatened by extensive tree removal, soil erosion, isolation from other populations in neighboring states, or by cessation of natural juniper stand rejuvenation, primarily through fire suppression. Other species that may benefit from habitat management for this species include the Gray Flycatcher, Western Scrub-Jay, Juniper Titmouse, Bewick's Wren, and Black-throated Gray Warbler.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Ash-throated Flycatcher in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Maintain mature juniper woodlands with an open canopy and well interspersed with sagebrush and other shrubs.
- 2) Maintain a mosaic of large trees and snags in areas where Ash-throated Flycatchers occur.

Recommendations

- 1) Implement woodland management practices that leave large, decadent, or dead trees intact for nesting, sallying perches, and song posts in areas where Ash-throated Flycatchers occur.
- 2) Retain snags and all trees with nest cavities. Retain mature and decadent trees for future snag production, particularly where existing snags are few.
- 3) Use prescribed fire to maintain open stands of juniper woodland where Ash-throated Flycatchers occur. Habitat alterations should be designed to promote habitat interspersion but not to the detriment of old growth stands.
- 4) Natural fires less than 1,200 acres (500 ha) should not be suppressed except when significant stands are threatened or when fragmentation of old growth stands will become too severe.
- 5) Increase the quantity and quality of shrub cover near to or interspersed among mature juniper stands to enhance foraging.

6) Where snags are unavailable and the lack of nest sites is limiting Ash-throated Flycatcher reproduction, a well-maintained nest box program may be beneficial. Because trees may take over 150 years to develop cavities, erecting nest boxes may mitigate snag loss. Nest boxes should have a 1.75-inch entrance hole, and should be placed 3 to 6 feet (1 to 2 m) above the ground in mature juniper woodland. Monitor nest boxes regularly throughout the nesting season to evict House Sparrows, rodents, and insects, and to clean out “dummy” nests built by wrens.

7) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Ash-throated Flycatchers (and other insectivores). Postpone all insecticide use until Ash-throated Flycatchers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

8) Do not encourage European Starlings to nest, and control, reduce, or remove European Starling populations where nesting cavity competition is a concern.

Cassin’s Kingbird

Cassin’s Kingbird (*Tyrannus vociferans*) would appear here based on priority, but this species is currently documented as a peripheral breeder in Wyoming, and will not be addressed in the Wyoming Bird Conservation Plan at this time. This species will likely be addressed in regional conservation plans.

Loggerhead Shrike

Primary Habitat Type: Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Loggerhead Shrike (LOSH) <i>Lanius ludovicianus</i> Level II M	~Shrub-steppe ~Pinyon-juniper ~Greasewood ~Shadscale saltbush ~Shelterbelts	~Stable branches and dense cover needed for nest sites ~Nests usually 1 to 5 feet above ground, regardless of shrub height		~Relatively open habitat with scattered trees and shrubs for nesting and perch sites and low vegetation and bare ground for foraging	~Requires lookout perches ~Maintain prey base by conservative burning and limited pesticide use ~Uses barbed wire fences for perching and prey impalement ~Urbanization, strip mining, hedgerow destruction, and agricultural conversions are habitat concerns ~Winters in Mexico

Found across Wyoming in shrub-steppe, shrubland, and woodland habitats. Breeds in basin-prairie shrublands, sagebrush grasslands, mountain-foothills shrublands, pine-juniper woodlands, and woodland-chaparral. Builds a bulky cup nest of twigs, forbs, and woven bark strips, lined with fine materials in a tree or shrub, usually hidden below the crown in a crotch or on a large branch, from 1 to 5 feet (0.3 to 1.5 m) above ground. Eggs (5 to 6, 24 mm) are grayish-buff and marked with gray, brown, and black. Swoops down on grasshoppers and other large insects from a lookout perch; also takes some small mammals and birds. Winters south to central Mexico. Population declines are due to habitat loss and conversion to cultivation and urbanization, loss of insect prey due to pesticide use, and pesticide contamination (especially on wintering grounds). Other species that may benefit from habitat management for this species include the American Kestrel, Greater Sage-Grouse, Northern Mockingbird, Sage Thrasher, Sage Sparrow, Brewer's Sparrow, Vesper Sparrow, and Lark Sparrow.

Population Objectives

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Loggerhead Shrikes have been detected on 80 BBS routes in Wyoming, including 60 routes on which they were observed a minimum of 3 years.
 - a) Maintain Loggerhead Shrikes on the 80 BBS routes on which they were observed (Figure 32).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

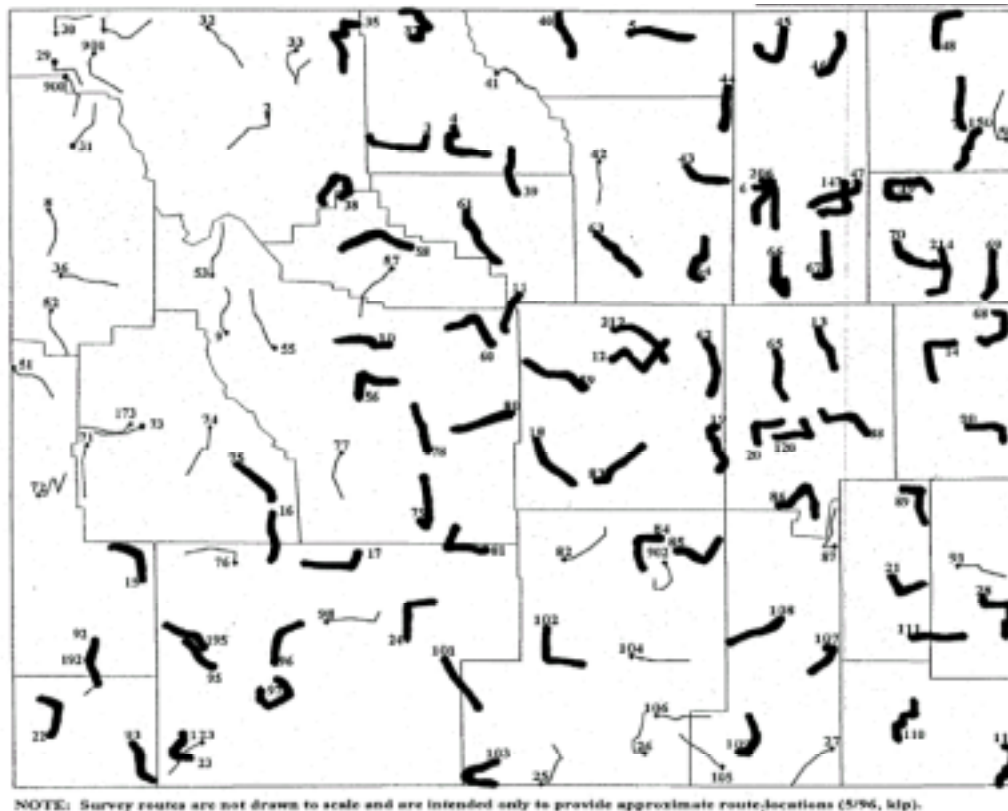


Figure 32. Bold lines indicate Breeding Bird Survey routes on which Loggerhead Shrikes have been observed from 1968 through 2002.

Habitat Objectives

- 1) Within the shrub-steppe landscape, provide areas of short vegetation [4 inches (10 cm) or less] surrounded by sagebrush, greasewood, and/or saltbush and areas of taller

vegetation [higher than 8 inches (20 cm)] as important ground foraging and nesting areas for Loggerhead Shrikes.

2) Protect known Loggerhead Shrike nest trees from damage, such as browsing or rubbing by livestock and loss due to prescribed burning, when using grazing or fire as land management tools.

Recommendations

1) Prevent large-scale fires that will eradicate large, continuous areas of sagebrush or other shrublands and woodlands, or result in cheatgrass invasion. Limit prescribed burns to small-scale fires during the non-breeding season.

2) Minimize conversion of sagebrush and other shrublands and woodlands to nonnative grasslands or croplands.

3) Maintain sagebrush in large, continuous stands composed of a mosaic of open (5%) to moderate (25%) shrub cover and a variety of ages and heights.

4) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. In addition to habitat loss through additional road construction, traffic volume (e.g. dust and noise), and displacement by other species more adapted to roads and edge (e.g. Horned Larks) also have effects. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.

5) Maintain herbaceous cover for nest concealment by protecting the current season's growth through the nesting season and by managing for at least 50% of annual vegetative growth to remain through the following nesting season.

6) Avoid or minimize insecticide use in shrubland habitats to maintain a food source for Loggerhead Shrikes (and other insectivores). Postpone all insecticide use until Loggerhead Shrikes and other insectivores have completed their breeding cycle.

Plumbeous Vireo

Primary Habitat Types: Mid Elevation Conifer and Low Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Plumbeous Vireo (PLVI) <i>Vireo plumbeus</i> Level II M	~Conifer or coniferous/deciduous forests ~Fairly dry or warm	~Low to medium canopy cover ~Dense mid-story and understory	~Forest stands with many small (0.4 acre) openings	~Uneven age structure	~Sensitive to forest fragmentation ~Common cowbird host ~Winters in South America

Scattered throughout the mountain foothills of Wyoming. Inhabits coniferous and mixed coniferous/deciduous forests, especially open forests with low to medium canopy cover and a dense shrub understory. Has a wide habitat tolerance, and uses openings caused by logging and fire. Favors rotation-age rather than old growth forests, but is apparently sensitive to forest fragmentation. Builds a deep cup nest suspended by the upper rim from a forked twig of a horizontal conifer or deciduous tree branch, 4 to 30 feet (1.2 to 9 m) above ground. Is a common cowbird host; if a cowbird egg is laid first, it often builds a second floor of the nest to cover it. Feeds on insects gleaned from twigs and foliage, or catches flying insects, and occasionally eats small fruits. Winters in South America. Increased opportunities for nest parasitism due to incompatible livestock grazing is a concern. Other species that may benefit from habitat management for this species include the Lewis' Woodpecker, Dusky Flycatcher, Townsend's Solitaire, Swainson's Thrush, and Western Tanager.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Plumbeous Vireos have been detected on 24 BBS routes in Wyoming, including 7 routes on which they were observed a minimum of 3 years.
 - a) Maintain Plumbeous Vireos on the 24 BBS routes on which they were observed (Figure 33).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

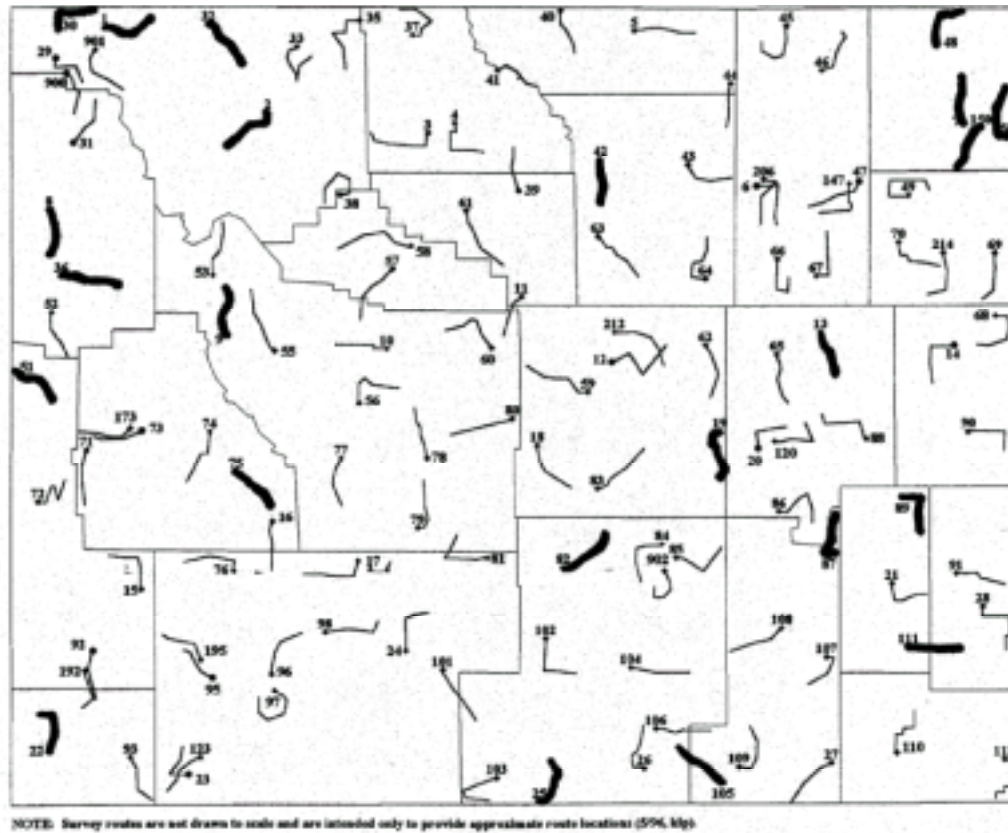


Figure 33. Bold lines indicate Breeding Bird Survey routes on which Plumbeous Vireos have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain undergrowth in coniferous and mixed coniferous/deciduous forests.
- 2) Maintain small openings [about 0.3 acre (0.1 ha)] in coniferous and mixed coniferous/deciduous forests without fragmenting forests and removing undergrowth.

Recommendations

- 1) Manage for coniferous and coniferous/deciduous forest stands with many small openings [about 0.3 acre (0.1 ha)] and considerable undergrowth in areas where Plumbeous Vireos occur.
- 2) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

3) Avoid or minimize insecticide use in forest habitats to maintain a food source for Plumbeous Vireos (and other insectivores). Postpone all insecticide use until Plumbeous Vireos and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Western Scrub-Jay

Primary Habitat Type: Juniper Woodland

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Western Scrub-Jay (WESJ) <i>Aphelocoma californica</i> Level II M	~Pine-juniper and juniper-sagebrush	~Large juniper trees for nesting and sentinel posts ~Sparse to medium juniper cover ~Open juniper-sagebrush savannah	~Moderate amount of exposed rock around the nest	~Rocky ridges and ravines	~Sensitive to human activity around the nest ~Long-term pair bond; pair or family group remain year-round on permanent territory ~In Wyoming, is dependent on the southwestern juniper community ~Is a year-round resident in Wyoming

Currently nests only in the juniper woodlands of southwestern Wyoming. Individuals found in Wyoming outside of the southwest corner are probably dispersing juveniles. Is associated with mature juniper woodlands but seems to avoid dense stands. Mature trees and high canopy cover are important to nesting and large trees also function as sentinel posts. Forages in open sagebrush-grassland as well as the juniper woodlands in which it nests. Area around the nest usually has relatively sparse canopy cover and moderate amounts of exposed rock. Builds a cup nest 3 to 20 feet (1 to 6 m) above ground toward the tip of a juniper branch. Nest is composed of small juniper and sagebrush twigs outwardly and lined with fine grass and occasionally animal hair. Eggs (2 to 7, 28 mm) are pale green, marked with reddish-brown or green. Is an omnivorous and opportunistic forager. Gleans a variety of invertebrates, small vertebrates, eggs, nuts, seeds, and fruit from the ground, small shrubs, and lower branches of junipers. Will come to bird feeders. Requires a reliable food source, such as juniper berries, in winter. Is a year-round resident in Wyoming. Is inclined to form pair bonds; pair or family group remains year-round on a permanent territory. Is

sensitive to human activities around the nest and has been known to abandon nests rather quickly. Its required habitat is restricted in Wyoming, making it vulnerable to extirpation. Could be threatened by extensive tree removal, soil erosion, isolation from other populations in neighboring states, or by cessation of natural juniper stand rejuvenation, primarily through fire suppression. Other species that may benefit from habitat management for this species include the Gray Flycatcher, Ash-throated Flycatcher, Bewick's Wren, and Scott's Oriole.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Western Scrub-Jay in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain mature juniper woodlands with an open canopy and well interspersed with sagebrush and other shrubs.

Recommendations

1) Implement woodland management practices that leave large, mature trees intact for nesting and sentinel posts in areas where Western Scrub-Jays occur.

2) Increase the quantity and quality of shrub cover near to or interspersed among mature juniper stands to enhance foraging.

3) Avoid approaching nests or disturbing nesting activities, as Western Scrub-Jays have been known to abandon nests easily.

4) Use prescribed fire to maintain open stands of juniper woodland where Western Scrub-Jays occur. Habitat alterations should be designed to promote habitat interspersed but not to the detriment of old growth stands.

5) Natural fires less than 1,200 acres (500 ha) should not be suppressed except when significant stands are threatened or when fragmentation of old growth stands will become too severe.

6) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Western Scrub-Jays (and other insectivores). Postpone all insecticide use until Western Scrub-Jays and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Juniper Titmouse

Primary Habitat Type: Juniper Woodland

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Juniper Titmouse (JUTI) <i>Baeolophus ridgwayi</i> Level II M	~Pine-juniper woodland, juniper-sagebrush	~Late-successional juniper woodlands with high canopy cover ~High density of large, dead limbs and decadent trees ~Productive understory and high herbaceous ground cover		~Prefers south and west aspects of slopes ~Breeding territories 2 to 12 acres; minimum viable population size is 20 individuals, requiring 125 acres	~Requires cavities for nesting ~Nest site fidelity ~May form permanent pair bonds ~May defend territory throughout the year ~Will use nest boxes ~In Wyoming, is dependent on the southwestern juniper community ~Is a year-round resident in Wyoming

Found almost exclusively in the juniper woodlands of southwestern Wyoming. Rarely found far from juniper tree cover, but readily makes use of sagebrush and other shrubs interspersed among the junipers; few species are as closely tied to a single habitat. Requires old growth woodland with open canopy and may prefer woodlands on south and west aspects that support more productive understories and higher herbaceous ground cover. Nests in a knothole or other natural or woodpecker-excavated cavity 3 to 10 feet (1 to 3 m) above the ground; often partially excavates the nest cavity. Will also use nest boxes. Nest is constructed of moss, grass, and forbs, and lined with fur and feathers. Eggs (3 to 9, 17 mm) are white and unmarked, or faintly marked with reddish-brown. Eats a wide variety of insects and spiders, fruits, and seeds up to the size of juniper berries. Requires juniper berries and invertebrate eggs in winter. Generally forages acrobatically on the trunks and thicker branches of old growth juniper, but also on the thinner branches of juniper and deciduous shrubs, including sagebrush. Is a year-round resident in Wyoming. May form permanent pair bonds and defend the same territory throughout the year. Required habitat is restricted in distribution in Wyoming, making it vulnerable to extirpation. Because of its need for

larger, mature trees, which are often found in more mesic, deep-soiled sites, it may be quite adversely affected by tree removal. Could be threatened by soil erosion, isolation from other populations in neighboring states, or by cessation of natural juniper stand rejuvenation, primarily through fire suppression. Other species that may benefit from habitat management for this species include the Hairy Woodpecker, Gray Flycatcher, Ash-throated Flycatcher, Mountain Chickadee, White-breasted Nuthatch, Bewick's Wren, and Black-throated Gray Warbler.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Juniper Titmouse in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Maintain large, old growth stands of juniper woodlands.
- 2) Maintain a mosaic of large trees and snags in areas where Juniper Titmice occur.

Recommendations

- 1) Retain snags and all trees with nest cavities. Retain mature and decadent trees for future snag production, particularly where existing snags are few.
- 2) Implement woodland management practices that provide large, old growth stands of juniper woodlands where Juniper Titmice occur. Habitat alterations should be designed to promote habitat interspersation but not to the detriment of old growth stands of juniper.
- 3) Increase the quantity and quality of shrub cover near to or interspersed among mature juniper stands to enhance foraging.
- 4) Where snags are unavailable and the lack of nest sites is limiting Juniper Titmouse reproduction, a well-maintained nest box program may be beneficial. Because trees may take over 150 years to develop cavities, erecting nest boxes may mitigate snag loss. Nest boxes should have a 1.5-inch entrance hole to exclude European Starlings. Place boxes 3 to 6 feet (1 to 2 m) above the ground in mature juniper woodland. Monitor nest boxes regularly throughout the nesting season to evict House Sparrows, rodents, and insects, and to clean out "dummy" nests built by wrens.
- 5) Avoid or minimize insecticide use in woodland habitats to maintain a food source for

Juniper Titmice (and other insectivores). Postpone all insecticide use until Juniper Titmice and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

6) Do not encourage European Starlings to nest, and control, reduce, or remove European Starling populations where nesting cavity competition is a concern.

Bushtit

Primary Habitat Type: Juniper Woodland

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Bushtit (BUT1) <i>Psaltiriparus minimus</i> Level II M	~Pine-juniper and juniper-sagebrush	~Younger juniper, 35 to 100 years old ~Edges, openings, and shrubby areas		~Minimum viable population size is 30 individuals, requiring 34 acres of habitat	~Occurs in local concentrations ~Sensitive to disturbance during nesting ~Will come to bird feeders ~In Wyoming, is dependent on the southwestern juniper community ~Rare cowbird host ~Is a year-round resident in Wyoming

Found almost exclusively in the juniper woodlands of southwestern Wyoming. Most often found in younger junipers that have not yet developed cavities but are reproductively mature, between 35 and 100 years old. Forages throughout the junipers but especially at the edge of juniper stands, in openings, and in the sagebrush and mountain mahogany understory. Builds a hanging gourd-shaped nest 7 to 10 inches (18 to 24 cm) long, supported by twigs above and occasionally below. Nest is constructed of moss, lichen, leaves, cocoons, grass, and flowers; secured by spider silk; and lined with plant down, hair, and feathers. Eggs (5 to 7, 14 mm) are white and unmarked. Is a rare cowbird host. Feeds acrobatically, gleaning insects and spiders from the bark, branches, and foliage of trees and shrubs. Also eats seeds and fruits. Forages in shrubs or on the outer sections of trees, usually between 10 and 20 feet (3 and 6 m) above the ground. Will come to bird feeders. Is a year-round resident in Wyoming. Shows a high tolerance for other Bushtits in its territory, and is found in local concentrations, with nearby areas of appropriate habitat unoccupied. During nest-building, egg-laying, and

early incubation, human presence or changes in weather can cause desertion and even pair bond dissolution. This sensitive period can be very long as nests may take up to 50 days to complete. Is vulnerable to extirpation in Wyoming because its required habitat is restricted in the state. Could be threatened by extensive tree removal, soil erosion, isolation from other populations in neighboring states, or by cessation of natural juniper stand rejuvenation, primarily through fire suppression. Other species that may benefit from habitat management for this species include the Common Poorwill, Western Bluebird, and Scott's Oriole.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Bushtit in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Maintain stands of younger age classes of juniper.
- 2) Maintain a mosaic of edges, open areas, and shrubs in juniper woodlands.

Recommendations

- 1) Implement woodland management practices that increase the quantity and quality of shrub cover near to or interspersed among juniper stands to enhance foraging.
- 2) Use prescribed fire to maintain open stands of juniper woodland where Bushtits occur. Habitat alterations should be designed to promote habitat interspersion but not to the detriment of old growth stands.
- 3) Avoid approaching nests or disturbing nesting activities, as Bushtits have been known to abandon nests rather quickly. During nest building, Bushtits make frequent trips to the same material source, so if nests must be identified for monitoring purposes, the general location of the nest can be determined by standing near the line of flight.
- 4) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Bushtits (and other insectivores). Postpone all insecticide use until Bushtits and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.
- 5) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Pygmy Nuthatch

Primary Habitat Type: Low Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Pygmy Nuthatch (PYNU) <i>Sitta pygmaea</i> Level II M	~Ponderosa pine ~Requires conifers	~Open (<70% canopy cover), mature to old-growth stands ~Requires dead or live pines for nest cavities ~High snag density		~Territory/home range is 2.4 acres	~Forms a long-term pair bond and maintains territory year-round ~Excavates a cavity nest; often limited by available nesting sites ~Nests in colonies ~Year-round resident in Wyoming; moves to lower elevations in winter

Scattered throughout most of Wyoming, but breeds primarily in the ponderosa pine forests of eastern Wyoming. Is considered a pine specialist; restricted mainly to the ponderosa pine habitat, but also occurs in other coniferous habitats. Prefers mature to old growth stands that are fairly open (less than 70% canopy cover). Is dependent on snag densities and nest cavity availability. Usually excavates a nest cavity near the top of a dead pine where the wood is well rotted, or in the underside of a dead branch about 6 to 60 feet (1.8 to 18 m) above ground, often at least 25 feet (7 m) up; will also use a post, old woodpecker cavity, or nest box. Lines cavity with a bed of plant down, bark shreds, hair, and feathers. Eggs (4 to 9, 15 mm) are white. 80% of diet is insects, mainly bark and leaf beetles; the balance is nearly all conifer seeds. Mostly forages in the tops of live trees on the outer branches, needle clusters, and twigs, and less often along large branches, tree trunks, and the ground. Also hover-gleans and hawks. Caches conifer seeds. Is a year-round resident in Wyoming, but moves to lower habitats in the winter. The health of populations may depend on the availability of old growth ponderosa pine. Populations are often limited by nesting sites; breeding densities will increase with the addition of nest boxes, but will drop significantly after timber harvesting if snags are removed. Other species that may benefit from habitat management for this species include the Merlin, Red-headed Woodpecker, Lewis' Woodpecker, and Western Bluebird.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Pygmy Nuthatch in Wyoming. Determine population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

Habitat Objectives

- 1) Maintain open stands of mature to old growth ponderosa pine.
- 2) Maintain a mosaic of large trees and snags, in clusters, with an open canopy in areas where Pygmy Nuthatches occur.

Recommendations

- 1) Implement woodland management practices that maintain open stands of mature to old growth ponderosa pines.
- 2) Retain snags and all trees with nest cavities, preferably in clusters. A minimum of 3 to 5 large [larger than 19 inches (48 cm) dbh] snags per acre (7 to 12 per ha) should be left standing. Retain mature and decadent trees for future snag production, particularly where existing snags are few.
- 3) Use prescribed fire to maintain open stands of forest and woodland where Pygmy Nuthatches occur.
- 4) Where snags are unavailable and the lack of nest sites is limiting Pygmy Nuthatch reproduction, a well-maintained nest box program may be beneficial. Monitor nest boxes regularly throughout the nesting season to evict House Sparrows, rodents, and insects, and to clean out “dummy” nests built by wrens.
- 5) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Pygmy Nuthatches (and other insectivores). Postpone all insecticide use until Pygmy Nuthatches and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Brown Creeper

Primary Habitat Types: Mid Elevation Conifer and High Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Brown Creeper (BRCR) <i>Certhia americana</i> Level II M	~Mixed conifers (lodgepole pine; Douglas fir-spruce; lodgepole pine-spruce-fir; spruce-fir; spruce)	~Non-fragmented stands		~Is area-sensitive; requires large blocks of intact habitat	~Snags for nesting with >8 inches dbh, broken tops, and >40% original bark intact ~Sensitive to timber harvest during the breeding season ~Rare cowbird host ~Is a year-round resident in Wyoming; moves to lower elevations in winter

Scattered throughout Wyoming in coniferous forest habitats. Prefers non-fragmented stands of lodgepole pine, Douglas-fir, blue spruce, Englemann spruce-subalpine fir, and mixed coniferous forests during the breeding season. Builds a hammock-like cup nest of bark shreds, feathers, sticks, and moss, under the loose bark of a snag or live conifer tree, 5 to 15 feet (1.5 to 4.5 m) above ground. Eggs (5 to 6, 15 mm) are white and lightly speckled with brown. Is a rare cowbird host. Gleans insects, spiders, nuts, and seeds from tree bark and branches. Is a year-round resident in Wyoming, and can be found at lower elevations during the winter. Is area-sensitive, and requires large blocks of mature/old growth mixed conifer habitat. Is intolerant of heavy logging or thinning. Populations are locally threatened by forest management practices that remove or fragment preferred habitat and that remove snags. Other species that may benefit from habitat management for this species include the Hairy Woodpecker, Hammond's Flycatcher, Townsend's Warbler, Golden-crowned Kinglet, and Red-breasted Nuthatch.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Brown Creeper in Wyoming. Determine population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

Habitat Objectives

- 1) Maintain large, continuous, non-fragmented stands of mixed conifer forests.
- 2) Maintain large diameter snags and live trees for Brown Creeper nesting and foraging sites within mixed conifer forests. Larger diameter trees provide deeper bark furrows, which increase the available foraging substrate without substantially increasing the actual area over which a bird has to move in search of prey.

Recommendations

- 1) Implement forest management practices that provide large, continuous, non-fragmented stands of mixed coniferous forests in areas where Brown Creepers occur.
- 2) Implement forest management practices that provide snags with broken tops, larger than 8 inches (20 cm) dbh, and with greater than 40% of the original bark intact for nesting in areas where Brown Creepers nest.
- 3) In areas where logging occurs, implement harvest rotations that increase the potential of the forest to produce or retain large snags (the lengthening of rotation periods to more than 100 years), retain large snags in clearcuts and thinning cuts and create snags from living trees in areas where large snags are not present, and maintain old stands of timber in riparian buffer zones.
- 4) Avoid or minimize insecticide use in forest habitats to maintain a food source for Brown Creepers (and other insectivores). Postpone all insecticide use until Brown Creepers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.
- 5) Determine the effects of forest management practices on Brown Creepers in Wyoming, since most research has taken place in other states where this species occurs.
- 6) Determine how landscape factors, disturbances, forest fragmentation, and various forest management practices impact Brown Creeper foraging, productivity, and survivorship.

Marsh Wren

Primary Habitat Type: Wetlands

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Marsh Wren (MAWR) <i>Cistothorus palustris</i> Level II M	~Emergent vegetation, especially cattails, bulrushes, and reeds ~Prefers narrow-leaved cattail to broad-leaved cattail	~Marshy areas, especially with tall emergent vegetation of moderate density	~Generally nests directly above shallow water ~Uses both fresh and brackish water marshes	~Prefers large marshes	~Winters south to central Mexico

Scattered across most of Wyoming in marshes and in drier habitats during migration. Mostly inhabits large freshwater marshes at lower elevations, including reservoirs. Prefers to nest in tall emergent vegetation of moderate density, especially cattails, bulrushes, and reeds. Builds a domed nest of cattails, reeds, or grasses; with a single opening near the equator; and lined with fine plant materials and feathers. Attaches nest to vegetation 3 to 5 feet (1 to 1.5 m) above the marsh substrate, which is usually shallow water. Male constructs many "dummy" nests and may use some for roosting. Eggs (3 to 10, 17 mm) are dull brown, usually marked with darker brown, occasionally wreathed, and occasionally unmarked. Eats insects and snails, and occasionally the contents of other birds' eggs. Gleans food from any plant surface, as well as at or just below the water surface; also hawks for insects. Winters south to central Mexico. Significant numbers are killed at communications towers and tall buildings. Will readily inhabit artificially created marshes. Other species that may benefit from habitat management for this species include the American Bittern, Western Grebe, Clark's Grebe, Northern Harrier, Forster's Tern, and Black Tern.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Marsh Wrens have been detected on 17 BBS routes in Wyoming, including 7 routes on which they were observed a minimum of 3 years.
 - a) Maintain Marsh Wrens on the 17 BBS routes on which they were observed (Figure 34).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed

during all years the route was run.

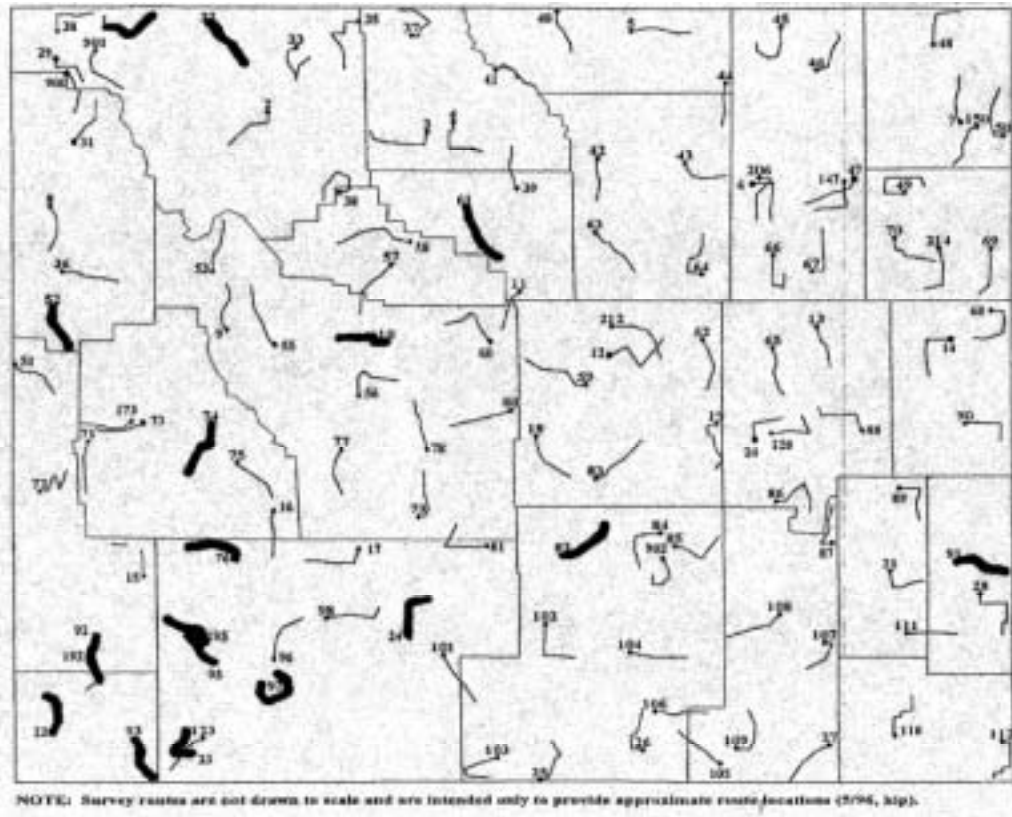


Figure 34. Bold lines indicate Breeding Bird Survey routes on which Marsh Wrens have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain large marshes and marsh complexes with tall emergent vegetation of moderate density.
- 2) Maintain water quality to sustain substantial populations of insects as a food source for Marsh Wrens.

Recommendations

- 1) Protect large marshes and marsh complexes from development or conversion to other habitat types.
- 2) Implement wetland management techniques that provide marshes with tall emergent vegetation of moderate density.
- 3) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff

into wetlands. This is particularly important where Marsh Wrens nest adjacent to agricultural land, and are vulnerable to contamination from agricultural runoff.

4) Avoid or minimize insecticide use in or near wetlands to maintain a food source for Marsh Wrens (and other insectivores). Postpone all insecticide use until Marsh Wrens and other insectivores have completed their breeding cycle.

American Dipper

Primary Habitat Type: Montane Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
American Dipper (AMDI) <i>Cinclus mexicanus</i> Level II M	~Stream-side vegetation is not important	~Not important	~Clear, unpolluted water ~Streams rarely exceed 50 feet wide and 7 feet deep	~Stream bottom with rocks, sand, and gravel ~Cliff or rock wall (or bridge) near stream for nest placement ~One pair will defend up to 1,050 feet of stream	~Winters in Wyoming, but moves to lower elevations with open water

Found throughout the mountains of Wyoming, except in the Black Hills. Requires clear, rapidly flowing mountain streams, and inhabits coniferous forests up to timberline. One pair of American Dippers will defend a stretch of stream up to 1,050 feet (320 m) in length during the breeding season. Builds an oven-like nest with a side entrance, insulated with moss and grass. Nest is usually built over water, either under an overhanging rock, behind a waterfall, under roots, or under a bridge in a damp location. Eggs (4 to 5, 26 mm) are white. Feeds on aquatic invertebrates and snails taken from rocks under the water, and also takes very small fish. Is a year-round resident in Wyoming, but moves to lower elevations with open water during the winter. Nesting and foraging is impacted by stream degradation due to sedimentation, channelization, logging, and incompatible livestock grazing. Other species that may benefit from habitat management for this species include the Harlequin Duck, Bald Eagle, Calliope Hummingbird, Willow Flycatcher, Lazuli Bunting, Veery, and Bullock's Oriole.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the American Dipper in Wyoming. Determine population trend

data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

Habitat Objectives

1) Maintain fast flowing, clear mountain streams with abundant invertebrates in areas where American Dippers occur by eliminating or limiting detrimental habitat changes, such as logging, sediment loading, and development.

Recommendations

1) Manage for high water quality and abundant invertebrates in areas occupied by American Dippers during both the breeding and non-breeding seasons.

2) In areas occupied by American Dippers, avoid activities such as logging and development that cause degradation or sedimentation of aquatic habitat.

Golden-crowned Kinglet

Primary Habitat Type: High Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Golden-crowned Kinglet (GCKI) <i>Regulus satrapa</i> Level II M	~Coniferous forests, especially where spruce is present ~Aspen-conifer	~Requires dense conifer stands ~Mature, uncut, and old growth forests ~High canopy closure ~Tall trees for nesting		~Usually along a stream ~Prefers forest interiors	~Sensitive to forest cutting ~Rare cowbird host ~Year-round resident in Wyoming; moves to lower elevations in winter

Found scattered throughout most of the mountainous areas of Wyoming, but breeds primarily in the western and south-central parts of the state. Inhabits conifer and aspen-conifer forests, particularly those that include spruce. Prefers the interiors of dense, mature, and old growth forests with high canopy closure; is much less common in cut or partially cut forests. Builds a globular pendant nest high in a conifer tree, near the trunk, and woven into the twigs of a horizontal branch. Nest is constructed of moss, lichen, spider silk, plant down, and dead leaves, and lined with inner bark, rootlets, and feathers. Eggs (5 to 11, 14 mm) are creamy white to muddy cream, variably spotted with brown, and usually wreathed. Is a rare cowbird host. Eats insects and their eggs, tree sap, fruit, and some seeds. Is a foraging specialist and adapted for hanging on tips of coniferous branches. Also hover-gleans and hawks. Is a year-round resident in

Wyoming; descends to lower elevations, including cities and towns, in winter, where it still prefers spruce. Is sensitive to forest cutting. Other species that may benefit from habitat management for this species include the Great Gray Owl, Boreal Owl, Three-toed Woodpecker, Black-backed Woodpecker, Hammond's Flycatcher, Brown Creeper, and Townsend's Warbler.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Golden-crowned Kinglets have been detected on 15 BBS routes in Wyoming, including 7 routes on which they were observed a minimum of 3 years.
 - a) Maintain Golden-crowned Kinglets on the 15 BBS routes on which they were observed (Figure 35).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

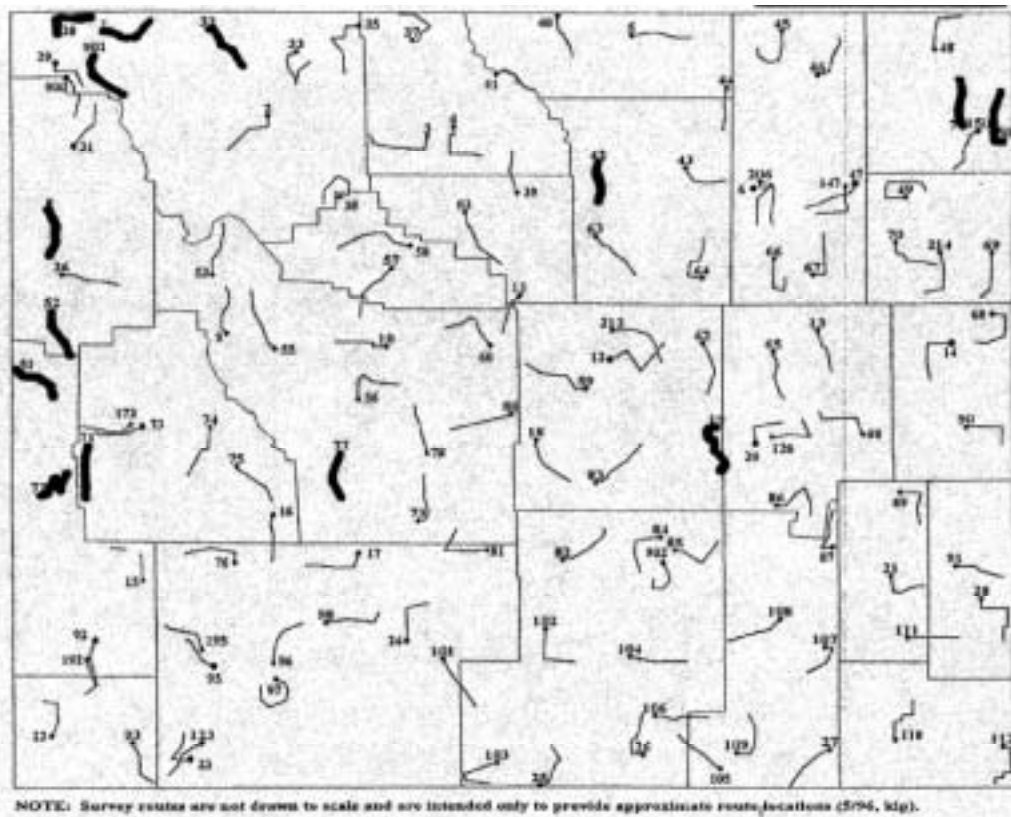


Figure 35. Bold lines indicate Breeding Bird Survey routes on which Golden-crowned Kinglets have been observed from 1968 through 2002.

Habitat Objectives

1) Maintain large stands of dense, mature, and old growth conifers, especially Engelmann spruce.

Recommendations

1) Leave large stands of mature and climax spruce.

2) Avoid removing and fragmenting mature and old growth conifer forests through logging and human developments.

3) Conduct thorough surveys for Golden-crowned Kinglets in tall, dense, mature/old growth spruce forests during the breeding season prior to any timber harvesting.

4) Avoid or minimize insecticide use in forest habitats to maintain a food source for Golden-crowned Kinglets (and other insectivores). Postpone all insecticide use until Golden-crowned Kinglets and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

5) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Western Bluebird

Primary Habitat Types: Juniper Woodland and Low Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Western Bluebird (WEBL) <i>Sialia mexicana</i> Level II M	~Pine-juniper, juniper woodlands, open ponderosa pine forests ~Also frequents meadows, burns, and other open areas	~Open woodland or edge habitat with exposed perches and fairly sparse ground cover ~Attracted to post-fire successional communities		~Open country with scattered trees ~Prescribed fire is usually beneficial, especially if it reduces shrubs and understory trees ~Benefits from moderate disturbance	~Requires cavities for nesting; secondary cavity nester ~Will use, and sometimes prefers, nest boxes ~House Sparrows and European Starlings compete for nest cavities ~Rare cowbird host ~Depends on mistletoe and juniper berries in winter ~Winters mostly within the U.S., usually within breeding range at lower elevation

Scattered across most of Wyoming, primarily along the southern edge of the state. Inhabits open woodlands, primarily ponderosa pine and juniper. Prefers edge habitat with scattered trees, exposed perches, and fairly sparse ground cover. A combination of woodlands with plenty of cavities for nesting, and nearby open grassy areas with plenty of perches for foraging provides optimum habitat. Breeding also extends to the level of mountain meadows, sometimes at 10,000 feet (3,000 m). Nests in a natural cavity or old woodpecker cavity, from 2 to 50 feet (0.6 to 15 m) above ground, which it lines with grass, weed stems, pine needles, twigs, or occasionally with hair or feathers. Will use, and sometimes prefers, nest boxes. Eggs (3 to 8, 21 mm) are pale blue to bluish-white, or occasionally white, and unmarked. Is a rare cowbird host. Ground-sallies or hovers to catch insects or pluck berries from branches. Forages primarily from perches, for which it prefers dead branches to living ones. Winters mostly within the U.S., usually within its breeding range at a lower elevation. Benefits from moderate disturbance, such as prescribed fire, especially if it reduces shrubs and understory trees.

However, felling dead trees and removing dead branches reduces nest cavities and increases competition with other cavity-nesting species, particularly House Sparrows and European Starlings. Populations dropped severely from 1900 to the 1940s due to loss of habitat and competition for nest cavities. Some populations may have declined due to forest closure as a result of fire suppression. Will likely respond to nest box programs in appropriate habitat where nest cavities are a limiting factor. Other species that may benefit from habitat management for this species include the Williamson's Sapsucker, Northern Flicker, Olive-sided Flycatcher, Bushtit, and Pygmy Nuthatch.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Western Bluebird in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain a mosaic of large trees and snags, in clusters, with an open, grassy understory in areas where Western Bluebirds occur.

Recommendations

1) Retain snags and all trees with nest cavities. Retain mature and decadent trees for future snag production, particularly where existing snags are few.

2) Use prescribed fire to maintain open stands of forest and woodland, and reduce shrub and understory trees where Western Bluebirds occur.

3) Refrain from salvage logging after burning. If salvage logging is unavoidable (for sanitary or firebreak reasons), then some areas should be left untouched rather than thinning the entire unit.

4) Where snags are unavailable and the lack of nest sites is limiting Western Bluebird reproduction, a well-maintained nest box program may be beneficial. Nest boxes should be 5x5x8 inches (12x12x20 cm) with a 1.56-inch entrance hole located 6 inches (15 cm) from the floor. The standard entrance hole size to exclude European Starlings is 1.5 inches, but Western Bluebirds have better success with a slightly larger opening. Place boxes 3 to 6 feet (1 to 2 m) above the ground in open country with scattered trees and low or sparse ground cover, or at forest edges. Where possible, place nest boxes on trees rather than fence posts, and face the entrance hole toward an open field, preferably east, north, south, then west. Monitor nest boxes regularly throughout the

nesting season to evict House Sparrows, rodents, and insects, and to clean out “dummy” nests built by wrens.

5) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Western Bluebirds (and other insectivores). Postpone all insecticide use until Western Bluebirds and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

6) Do not encourage European Starlings to nest, and control, reduce, or remove European Starling populations where nesting cavity competition is a concern.

Townsend's Solitaire

Primary Habitat Types: Mid Elevation Conifer, High Elevation Conifer, and Juniper Woodland

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Townsend's Solitaire (TOSO) <i>Myadestes townsendi</i> Level II M, K	~Coniferous forests during breeding season ~Juniper woodlands during winter	~Open forest structure ~Thickets and brushy areas on steep, rocky slopes		~Elevation 8,000 feet to timberline during breeding season	~Feeds almost entirely on juniper berries in winter; feeds on insects during breeding season ~Is a year-round resident in Wyoming; may move to lower elevations (i.e. juniper woodlands) in winter

Found throughout most of Wyoming in open coniferous forests from 8,000 feet (2,500 m) to timberline during the breeding season, especially on steep, rocky slopes with shrub thickets. Builds a neat shallow cup nest of fine dry grasses on a base of trash, twigs, sticks, or grass. Places nest on or near the ground in the shelter of overhanging rocks, tree roots, or branches. Eggs (3 to 5, 24 mm) are dull white to light blue, marked with brown, occasionally wreathed. Flies from an exposed perch like a flycatcher to capture flying insects; also gleans insects and fruits from vegetation. Is a year-round resident in Wyoming. Moves to lower elevation juniper woodlands within the same range during winter, where it feeds almost entirely on juniper berries and may defend a territory to protect a supply of berries for the duration of the winter. Other

species that may benefit from habitat management for this species include the Olive-sided Flycatcher and Plumbeous Vireo.

Population Objectives

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Townsend’s Solitaires have been detected on 31 BBS routes in Wyoming, including 14 routes on which they were observed a minimum of 3 years.
 - a) Maintain Townsend’s Solitaires on the 31 BBS routes on which they were observed (Figure 36).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

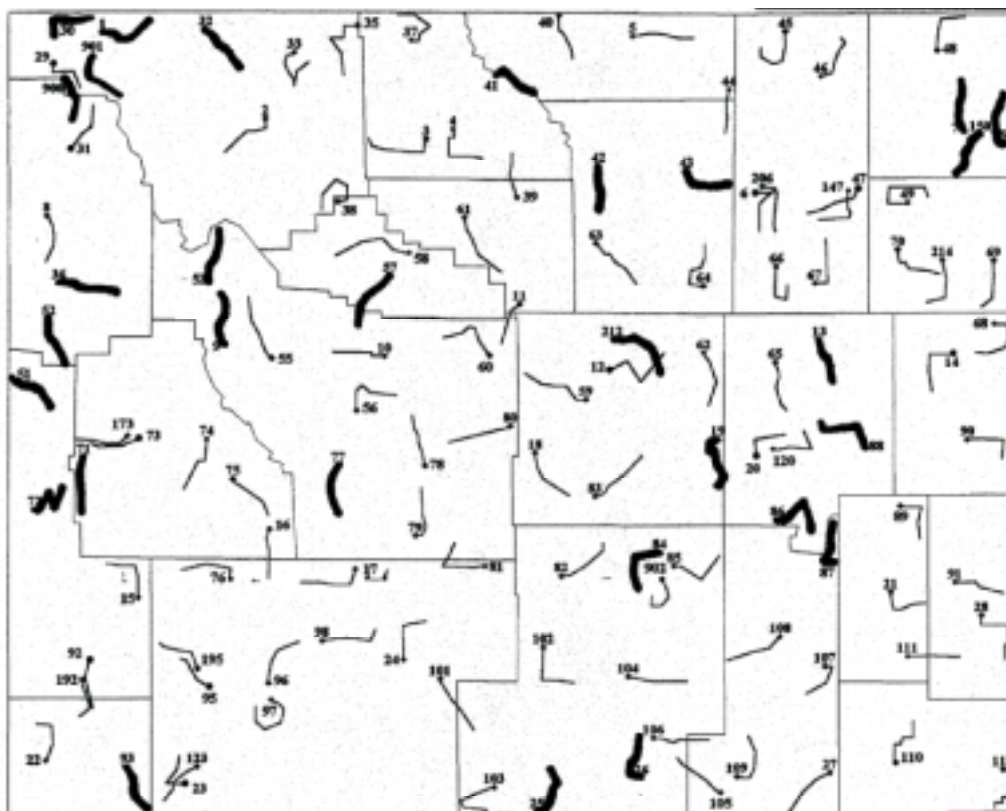


Figure 36. Bold lines indicate Breeding Bird Survey routes on which Townsend’s Solitaires have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain an open forest structure with shrub thickets and other low cover.
- 2) Maintain a mosaic of berry-producing juniper stands to provide winter food and habitat for Townsend's Solitaires.

Recommendations

- 1) Manage for coniferous stands with small openings and dense undergrowth in areas where Townsend's Solitaires occur.
- 2) Allow wildfires to burn and use prescribed fire to create an open stand structure in areas where Townsend's Solitaires occur.
- 3) Use timber harvest methods and treatments to create small openings and a relatively open canopy closure.
- 4) Avoid or minimize insecticide use in forest habitats to maintain a food source for Townsend's Solitaires (and other insectivores). Postpone all insecticide use until Townsend's Solitaires and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Sage Thrasher

Primary Habitat Type: Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Sage Thrasher (SATH) <i>Oreoscoptes montanus</i> Level II M, R	~Sagebrush ~Greasewood ~Rabbitbrush ~Saltbush	~Maximum height of nest = 5 feet in shrubs, average (ID) is 35 inches ~Dense stands of shrubs for nesting	~Elevation is not important; presence of sagebrush is important ~Nest shade is important ~More abundant in drier sites	~Some bare ground between shrubs may be important for foraging ~Fairly adaptable to patchy habitats as long as sagebrush remains the dominant species ~Average territory size ranges from 2.4 to 4.6 acres (ID) ~Nesting populations need habitat patches of at least 250 acres (MT)	~Sagebrush obligate ~Nests in or under preferred shrub (usually sagebrush) in dense stands ~Nest protection from heat/cold may be important ~Males sing and display from tops of shrubs ~Sensitive to fragmentation of shrub-steppe habitat and removal of sagebrush ~Loss of large shrubs by habitat manipulation is detrimental ~Known ejector of cowbird eggs ~Consumes large number of grasshoppers and Mormon crickets ~May have large home ranges ~Winters in Mexico

Found across Wyoming in prairie and foothills shrubland habitat where sagebrush is present. Is a sagebrush obligate species, so is restricted to sagebrush habitats during the breeding season or year-round. Builds a bulky cup nest of coarse twigs, forbs, and grass, lined with fine materials in a dense stand of sagebrush low in a sagebrush shrub near the plant's main axis, or occasionally underneath. Eggs (3 to 5, 25 mm) are deep

blue or greenish-blue, heavily spotted with brown. Is known to eject cowbird eggs from its nest. Gleans insects and fruit from the ground, and consumes large numbers of grasshoppers and Mormon crickets. Winters south to northern Mexico. Population declines are due to fragmentation and removal of sagebrush habitat. Other species that may benefit from habitat management for this species include the Greater Sage-Grouse, Brewer's Sparrow, Sage Sparrow, Loggerhead Shrike, Vesper Sparrow, and Lark Sparrow.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Sage Thrashers have been detected on 83 BBS routes in Wyoming, including 57 routes on which they were observed a minimum of 3 years.
 - a) Maintain Sage Thrashers on the 83 BBS routes on which they were observed (Figure 37).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

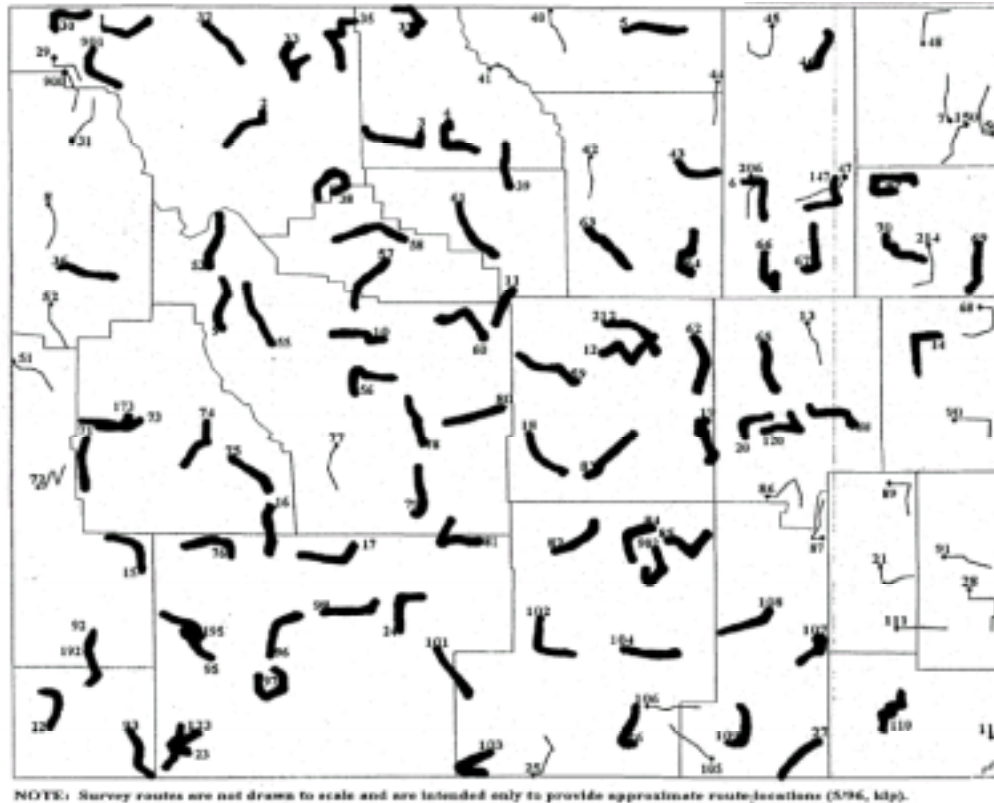


Figure 37. Bold lines indicate Breeding Bird Survey routes on which Sage Thrashers have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain large blocks of unfragmented tall, older, dense stands of sagebrush habitat in areas where Sage Thrashers breed. Continuous areas should be greater than 50 acres (20 ha) in size.
- 2) Within the shrub-steppe landscape, provide areas of short vegetation surrounded by sagebrush as important ground foraging, nesting, and perching sites for Sage Thrashers.
- 3) Maintain sagebrush in large, continuous stands composed of a mosaic of open (5%) to moderate (25%) shrub cover and a variety of ages and heights.
- 4) Abundance of Sage Thrashers and other sagebrush obligates is correlated with vegetation structure (e.g. sagebrush density, canopy cover, and vertical structure) in non-fragmented sagebrush shrub-steppe habitat. Manage for no net loss of sagebrush habitat on a landscape scale.

Recommendations

- 1) Prevent large-scale fires that will eradicate large, continuous areas of sagebrush or result in cheatgrass invasion, and limit prescribed burns to small-scale fires during the non-breeding season.
- 2) Minimize conversion of shrublands and woodlands to nonnative grasslands or croplands.
- 3) Maintain herbaceous cover for nest concealment by protecting the current season's growth through the nesting season and by managing for at least 50% of annual vegetative growth to remain through the following nesting season.
- 4) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.
- 5) Discourage road construction and other developments where it would reduce sagebrush habitat patch size to less than 50 acres (20 ha).
- 6) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. In addition to habitat loss through additional road construction, traffic volume (e.g. dust and noise), and displacement by other species more adapted to roads and edge (e.g. Horned Larks) also have effects. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.
- 7) Avoid or minimize insecticide use in shrubland habitats to maintain a food source for Sage Thrashers (and other insectivores). Postpone all insecticide use until Sage Thrashers and other insectivores have completed their breeding cycle.

Townsend's Warbler

Primary Habitat Types: High Elevation Conifer and Mid Elevation Conifer

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Townsend's Warbler (TOWA) <i>Dendroica townsendii</i> Level II M	~Tall, mature/old growth conifer forests of spruce, fir, Douglas-fir, lodgepole pine ~Moist, shaded	~Favors dense forests of towering old growth			~Treetop insect feeder ~Sensitive to timber harvest and declines with an increase in trees removed ~Feeds exclusively on insects ~Rare cowbird host ~Winters south through Mexico to Costa Rica

Scattered across most of Wyoming in coniferous forests. Inhabits dense, moist, shaded old growth and mature lodgepole pine, Douglas-fir, Englemann spruce-subalpine fir, and mixed conifer forests. Builds a cup nest of grass, twigs, lichen, and feathers far out on a limb of a conifer, usually 8 to 15 feet (2.4 to 4.5 m) above ground. Eggs (4 to 5, 18 mm) are white and marked with brown, mainly toward the large end. Is a rare cowbird host. Feeds entirely on insects gleaned from vegetation near the treetops. Winters south through Mexico to Costa Rica. Populations are sensitive to timber harvesting, and decline with increases in the amount of mature and old growth forest habitat removed. Other species that may benefit from habitat management for this species include the Great Gray Owl, Boreal Owl, Hammond's Flycatcher, Plumbeous Vireo, Brown Creeper, and Golden-crowned Kinglet.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Townsend's Warbler in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain stands of tall, dense, mature/old growth mixed conifer forests in areas where Townsend's Warblers nest.

2) Avoid removing and fragmenting mature/old growth conifer forests through logging and human developments.

Recommendations

- 1) Inventory appropriate habitat to determine population and nesting status and specific habitat requirements of Townsend's Warblers in Wyoming.
- 2) Conduct thorough surveys for Townsend's Warblers in tall, dense, mature/old growth mixed conifer forests during the breeding season prior to any timber harvesting.
- 3) Avoid or minimize insecticide use in forest habitats to maintain a food source for Townsend's Warblers (and other insectivores). Postpone all insecticide use until Townsend's Warblers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.
- 4) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

MacGillivray's Warbler

Primary Habitat Types: Montane Riparian and Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Mac-Gillivray's Warbler (MGWA) <i>Oporornis tolmiei</i> Level II M	~Shrub component (such as willow, alder, chokecherry, dogwood) ~Sapling forest	~Dense understory ~Brushy vegetation ~Moderate cover	~Elevation <9,000 feet	~Moist areas ~Mid to late succession ~Patchy habitat	~Responds negatively to long-term livestock grazing (however, proper grazing can enhance shrub density and cover) ~Uncommon cowbird host ~Winters in Mexico and Central America

Found throughout most of the mountainous areas of Wyoming. Uses low, dense shrubs under open canopies; shady, damp thickets; forest edges; burned areas; and brushy hillsides. Prefers burned or cut areas in early successional stages. Builds a grassy cup nest about 1 to 5 feet (0.3 to 1.5 m) above ground between the upright stems of a fir sapling, oak, alder, chokecherry, or other shrub. Is an uncommon cowbird host. Eggs (4, 18 mm) are white to creamy colored and marked with brown. Feeds mostly on insects, such as beetles and caterpillars, gleaned from vegetation, tree bark, and the ground. Usually forages within 6 feet (2 m) of the ground. Winters in southern Baja California, central Mexico, and south to western Panama. Population declines are due to riparian habitat degradation by incompatible livestock grazing. Other species that may benefit from habitat management for this species include the Wilson's Warbler, Song Sparrow, Lincoln's Sparrow, Warbling Vireo, Dark-eyed Junco, Yellow-breasted Chat, Common Yellowthroat, Lazuli Bunting, and Blue Grosbeak.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate MacGillivray's Warblers have been detected on 29 BBS routes in Wyoming, including 20 routes on which they were observed a minimum of 3 years.
 - a) Maintain MacGillivray's Warblers on the 29 BBS routes on which they were observed (Figure 38).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

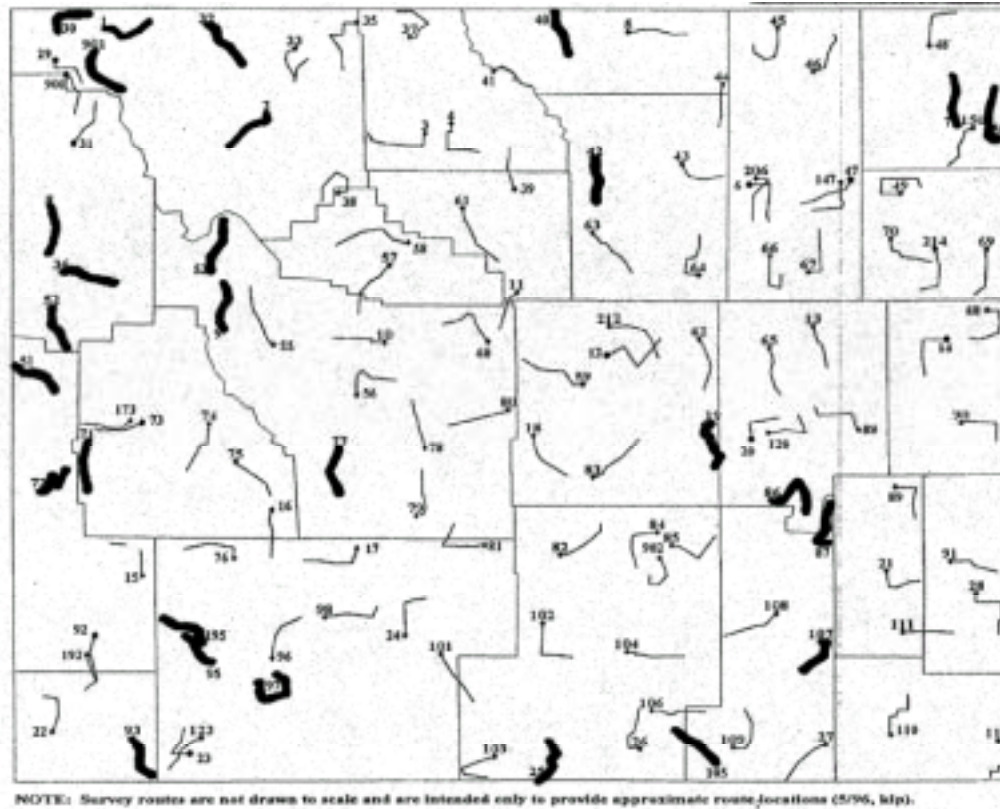


Figure 38. Bold lines indicate Breeding Bird Survey routes on which MacGillivray's Warblers have been observed from 1968 through 2002.

Habitat Objectives

1) Provide dense understory with brushy vegetation and moderate cover in areas where MacGillivray's Warblers occur.

Recommendations

- 1) Avoid long-term livestock grazing in riparian habitat that adversely impacts the shrub component.
- 2) Intensively graze livestock periodically in riparian habitat (once every few years, depending on the site) to enhance shrub density and cover.
- 3) Implement riparian management practices that emphasize protection and establishment of dense shrub understory.
- 4) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and

to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

5) Avoid or minimize insecticide use in riparian areas to maintain a food source for MacGillivray's Warblers (and other insectivores). Postpone all insecticide use until MacGillivray's Warblers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Wilson's Warbler

Primary Habitat Type: Montane Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Wilson's Warbler (WIWA) <i>Wilsonia pusilla</i> Level II M, K	~Willow and alder	~Dense thickets ~Early stages of regeneration ~Riparian thickets, shrubby lakeshores, edges of mountain meadows, low shrubs at timberline	~Moist locations	~Elevation 7,000 to 10,500 feet	~Loosely colonial in ideal habitat ~Uncommon cowbird host ~Winters south to western Panama

Scattered throughout most of Wyoming in willow and alder thickets of stream banks, lakeshores, and wet meadows between 7,000 and 10,500 feet (2,100 and 3,200 m). Builds a bulky cup nest of dead leaves, grass, and moss, lined with fine grass and occasionally hair. Generally nests on the ground, in a low tangle of vines or shrubs. Often nests at the base of a small tree or shrub or well concealed in a grass hummock. Eggs (2 to 7, 16 mm) are white to creamy, marked with brown, and often wreathed. Is an uncommon cowbird host. May be loosely colonial in ideal habitat. Primarily eats insects but also takes a few berries. Forages by gleaning from foliage and twigs and by catching insects in the air like a flycatcher. Winters south to western Panama. Other species that may benefit from habitat management for this species include the Broad-tailed Hummingbird, MacGillivray's Warbler, Fox Sparrow, Song Sparrow, Lincoln's Sparrow, and White-crowned Sparrow.

Population Objectives

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Wilson's Warblers have been detected on 22 BBS routes in Wyoming, including 12 routes on which they were observed a minimum of 3 years.

- a) Maintain Wilson's Warblers on the 22 BBS routes on which they were observed (Figure 39).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

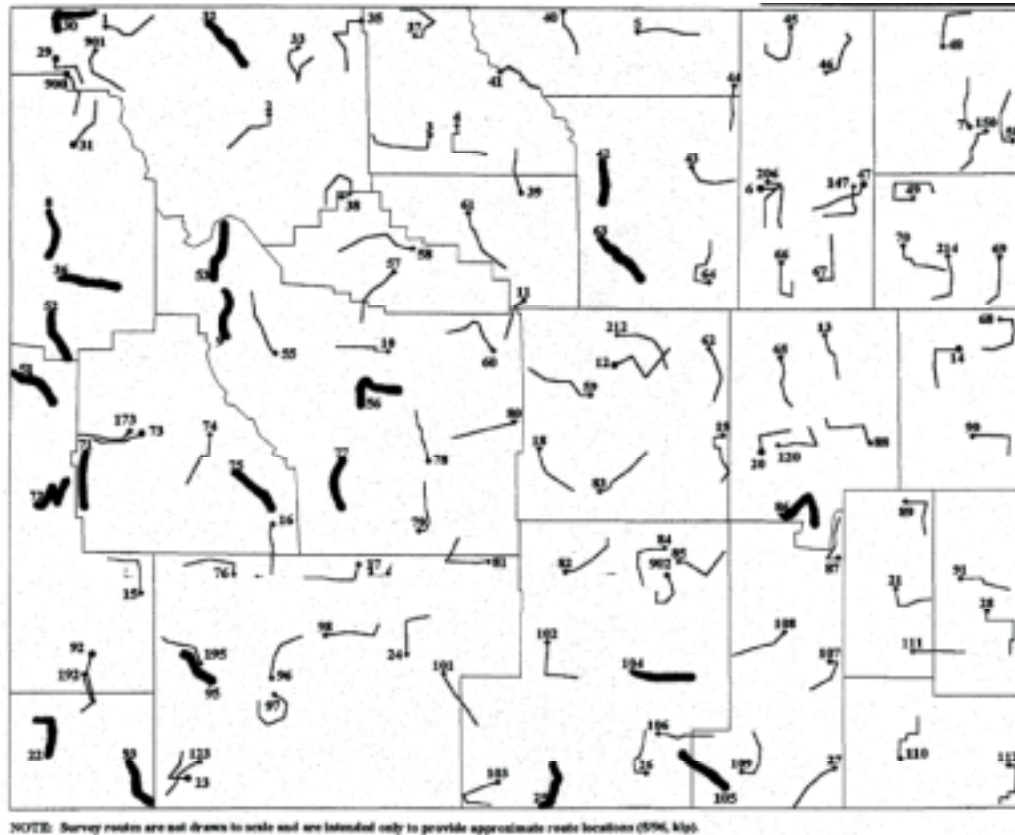


Figure 39. Bold lines indicate Breeding Bird Survey routes on which Wilson's Warblers have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain dense thickets of willow, alder, and other shrubs in areas where Wilson's Warblers occur.

Recommendations

- 1) Implement riparian management practices that emphasize protection and establishment of dense shrub understory.

- 2) Reduce or eliminate any activities that degrade the structure and quality of willow shrub riparian systems.
- 3) Avoid long-term incompatible livestock grazing in riparian habitat that adversely impacts the shrub component. Intensively graze livestock periodically in riparian habitat (once every few years, depending on the site) to enhance shrub density and cover.
- 4) Avoid incompatible recreation in riparian habitat that adversely impacts the shrub component. Locate recreational facilities such as roads, trails, and campgrounds away from riparian areas.
- 5) Avoid cutting timber within 100 feet (30 m) of the riparian area.
- 6) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.
- 7) Avoid or minimize insecticide use in riparian habitats to maintain a food source for Wilson's Warblers (and other insectivores). Postpone all insecticide use until Wilson's Warblers and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

Vesper Sparrow

Primary Habitat Type: Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Vesper Sparrow (VESP) <i>Pooecetes gramineus</i> Level II M, R	~Shrub-steppe with mixed grass	~Scattered shrubs and thin grass cover ~Grass height 6 to 12 inches		~Open habitat with scattered shrubs for conspicuous song perches and good bunchgrass cover for nest concealment ~6 to 24% bare ground, 10 to 20% shrub canopy cover ~Territory size about 5 acres per pair	~Males frequently use sagebrush as song perches ~Widespread use of pesticides and grasshopper control may be detrimental to prey base ~Fires are detrimental if structure is removed ~Ground nester; more susceptible to predation ~Nests are often placed in croplands and destroyed by agricultural operations ~Common cowbird host ~Winters in Mexico

Found across Wyoming in basin-prairie shrublands, mountain-foothills shrublands, grasslands, and agricultural areas. Excavates a depression in the ground and builds a bulky cup nest in it of grass, forbs, and rootlets, lined with fine materials. Nest is often placed in cropland and destroyed by agricultural operations. Eggs (3 to 4, 21 mm) are creamy-white or pale greenish-white and have various markings in shades of brown or gray. Is a common cowbird host. Feeds on the ground, eating insects and grass and forb seeds. Winters south to central Mexico. Concerns include loss of nests to agricultural operations and widespread pesticide use that eliminates insect prey base. Other species that may benefit from habitat management for this species include the Greater Sage-Grouse, Brewer's Sparrow, Sage Sparrow, Sage Thrasher, Loggerhead Shrike, and Lark Sparrow.

Population Objectives

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Vesper Sparrows have been detected on 119 BBS routes in Wyoming, including 107 routes on which they were observed a minimum of 3 years.
 - a) Maintain Vesper Sparrows on the 119 BBS routes on which they were observed (Figure 40).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

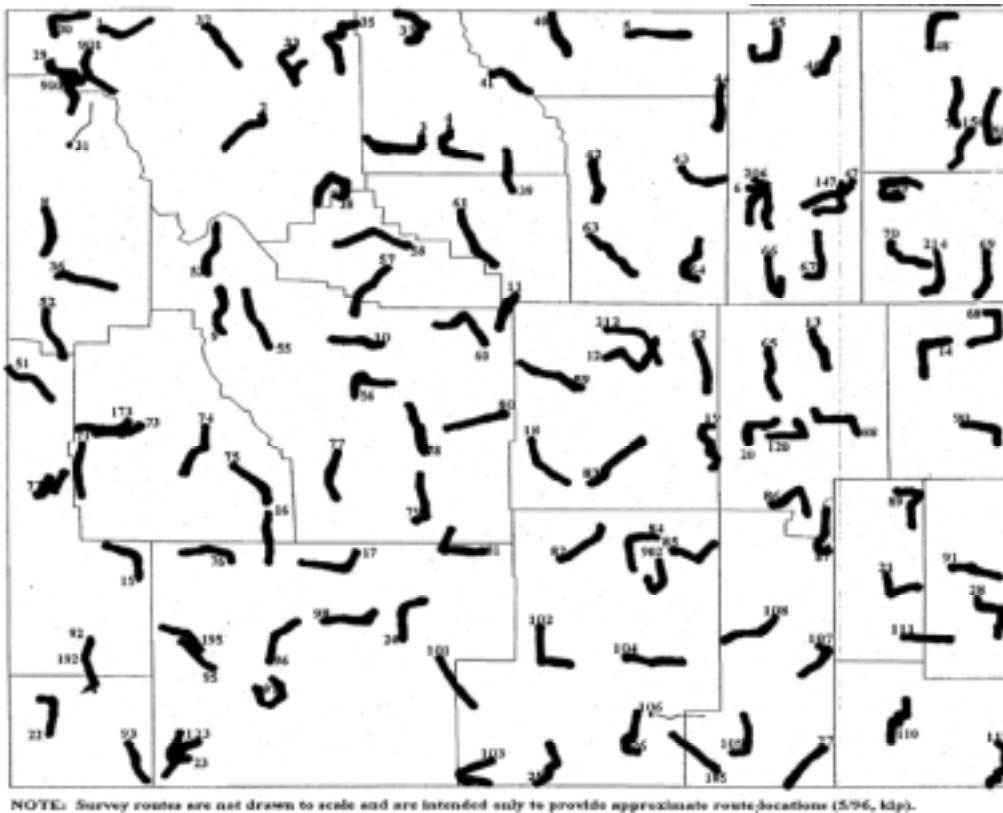


Figure 40. Bold lines indicate Breeding Bird Survey routes on which Vesper Sparrows have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain a mosaic of sagebrush heights, densities, and ages within the sagebrush shrub-steppe landscape so young, sparse sagebrush stands are available for nesting Vesper Sparrows.

2) Within shrublands where Vesper Sparrows nest, maintain grass height of 6 to 12 inches (15 to 30 cm), 6 to 24% bare ground, 10 to 20% shrub canopy cover, and territory size of about 5 acres (2 ha) per pair.

Recommendations

1) Prevent large-scale fires that will eradicate large, continuous areas of sagebrush or other shrubland habitat, or result in cheatgrass invasion. Limit prescribed burns to small-scale fires during the non-breeding season.

2) Minimize conversion of sagebrush and other shrublands to nonnative grasslands or croplands.

3) Maintain sagebrush in large, continuous stands composed of a mosaic of open (5%) to moderate (25%) shrub cover and a variety of ages and heights.

4) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. In addition to habitat loss through additional road construction, traffic volume (e.g. dust and noise), and displacement by other species more adapted to roads and edge (e.g. Horned Larks) also have effects. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.

5) Maintain herbaceous cover for nest concealment by protecting the current season's growth through the nesting season and by managing for at least 50% of annual vegetative growth to remain through the following nesting season.

6) Avoid or minimize insecticide use in shrubland habitats to maintain a food source for Vesper Sparrows (and other insectivores). Postpone all insecticide use until Vesper Sparrows and other insectivores have completed their breeding cycle.

7) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Lark Sparrow

Primary Habitat Type: Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Lark Sparrow (LASP) <i>Chondestes grammacus</i> Level II M		~Usually nests on the ground, or up to 10 feet in a shrub		~Open habitat with scattered shrubs and trees	~Uses shrubs as song perches and lookouts ~Ground nester; more susceptible to predation ~Nests placed in croplands are destroyed by agricultural operations ~Occasional cowbird host ~Winters in Mexico

Found across most of Wyoming in pine-juniper, woodland-chaparral, basin-prairie shrublands, mountain-foothills shrublands, grasslands, and agricultural areas. Builds a bulky cup nest of grass, forbs, and twigs, lined with fine materials in a hollow depression on the ground; occasionally nests low in a shrub. Eggs (4 to 5, 20 mm) are creamy to grayish-white and marked with dark brown and black. Is an occasional cowbird host. Feeds on insects and grass and forb seeds gleaned from the ground. Winters south to central Mexico. Concerns include habitat loss and conversion due to cultivation and urbanization, and loss of nests to agricultural operations. Other species that may benefit from habitat management for this species include the Greater Sage-Grouse, Brewer's Sparrow, Sage Sparrow, Sage Thrasher, Loggerhead Shrike, and Vesper Sparrow.

Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Lark Sparrows have been detected on 99 BBS routes in Wyoming, including 72 routes on which they were observed a minimum of 3 years.
 - a) Maintain Lark Sparrows on the 99 BBS routes on which they were observed (Figure 41).

- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

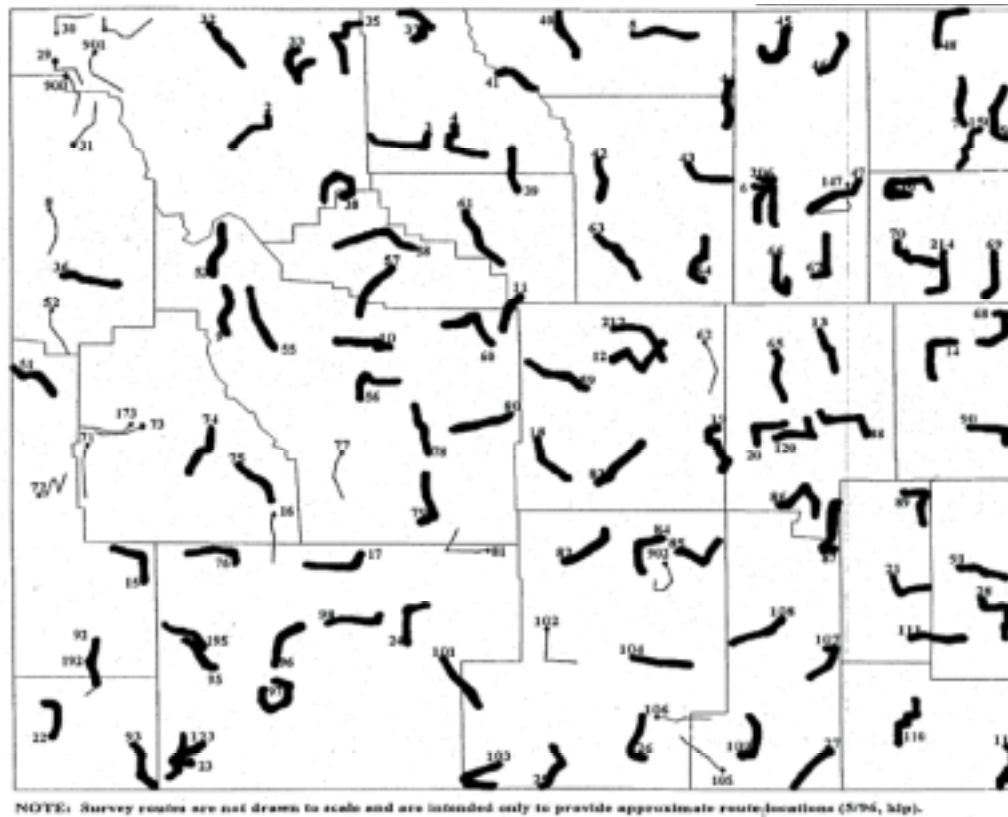


Figure 41. Bold lines indicate Breeding Bird Survey routes on which Lark Sparrows have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain large blocks of non-fragmented, tall, older, dense stands of sagebrush habitat in areas where Lark Sparrows breed.

Recommendations

- 1) Prevent large-scale fires that will eradicate large, continuous areas of sagebrush or other shrublands and woodlands, or result in cheatgrass invasion. Limit prescribed burns to small-scale fires during the non-breeding season.
- 2) Minimize conversion of sagebrush and other shrublands and woodlands to nonnative grasslands or croplands.

- 3) Maintain sagebrush in large, continuous stands composed of a mosaic of open (5%) to moderate (25%) shrub cover and a variety of ages and heights.
- 4) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. In addition to habitat loss through additional road construction, traffic volume (e.g. dust and noise), and displacement by other species more adapted to roads and edge (e.g. Horned Larks) also have effects. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.
- 5) Maintain herbaceous cover for nest concealment by protecting the current season's growth through the nesting season and by managing for at least 50% of annual vegetative growth to remain through the following nesting season.
- 6) Avoid or minimize insecticide use in shrubland habitats to maintain a food source for Lark Sparrows (and other insectivores). Postpone all insecticide use until Lark Sparrows and other insectivores have completed their breeding cycle.
- 7) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Lark Bunting

Primary Habitat Types: Shortgrass Prairie and Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Lark Bunting (LARB) <i>Calamospiza melanocorys</i> Level II M	~Highly variable vegetation associations (prairie grasslands and shrublands)	~Open grasslands with a mix of short and tall grass and scattered shrubs ~Sagebrush shrub-steppe with grassy openings ~Nest in areas with 60 to 70% low grass cover and 10 to 15% bare ground ~10 to 30% shrub or tall grass cover needed for nest protection and perch sites		~Will not nest in areas with less than 30% grass cover or more than 60% bare ground	~Nest concealment is important ~Heavy livestock grazing can be detrimental, but low to moderate grazing can create habitat patchiness ~Numbers can be highly variable between years ~Winters in Mexico

Found throughout Wyoming in open habitats with relatively short, herbaceous vegetation. Inhabits mixed shortgrass prairie and other areas of predominately low growth. Also uses areas with taller grasses, disturbed grasslands, sagebrush-grassland and shrub-steppe habitats, mountain-foothill shrublands, and agricultural areas. Builds a cup nest of fine grasses on the ground, often sheltered by overhanging vegetation and placed next to a shrub or other tall vegetation. Eggs (4 to 5, 22 mm) are pale blue or greenish-blue, sometimes with reddish-brown spots. Is an uncommon cowbird host. Forages on the ground for insects, especially grasshoppers, and also eats grass and forb seeds. Winters south to central Mexico. Since the 1800s, range contractions and population declines have occurred across the Lark Bunting's range. Other species that may benefit from habitat management for this species include the Chestnut-collared Longspur, Western Meadowlark, Short-eared Owl, Burrowing Owl, Upland Sandpiper, Horned Lark, and Ferruginous Hawk.

Population Objectives

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Lark Buntings have been detected on 103 BBS routes in Wyoming, including 78 routes on which they were observed a minimum of 3 years.

- a) Maintain Lark Buntings on the 103 BBS routes on which they were observed (Figure 42).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

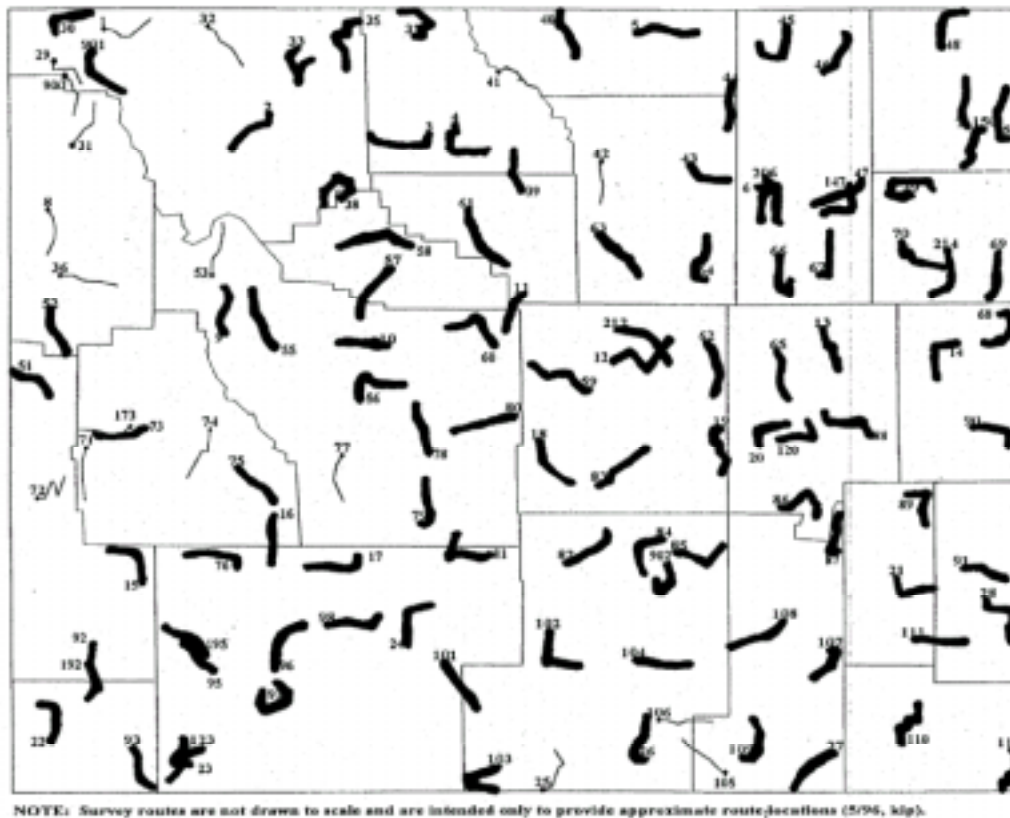


Figure 42. Bold lines indicate Breeding Bird Survey routes on which Lark Buntings have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain a mosaic of short grass for feeding and courtship interspersed with taller grasses and forbs for nest concealment, brood-rearing cover, and perch sites.
- 2) Maintain areas where Lark Buntings occur with no less than 30% grass cover and no more than 60% bare ground. Where Lark Buntings are known to nest, maintain areas with 60 to 70% low grass cover, 10 to 15% bare ground, and 10 to 30% shrub or tall grass cover.

3) Maintain large areas of grassland where Lark Buntings occur. Lark Buntings avoid small grassland patches, and their density increases with increasing areas of contiguous grassland.

Recommendations

1) In known Lark Bunting breeding areas, avoid intensive summer grazing so cover and taller vegetation are retained for nest protection and prey availability. Heavy grazing during the winter and light grazing during the summer may be compatible.

2) Short-term rotational grazing can create habitat patchiness needed by Lark Buntings and other species. Avoid long-term grazing in shortgrass prairie habitat.

3) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Lark Buntings (and other insectivores). Postpone all insecticide use until Lark Buntings and other insectivores have completed their breeding cycle.

4) In agricultural areas where Lark Buntings occur, retain crop residue on the soil surface to harbor insect prey and provide cover for nest sites.

5) In hayfields where Lark Buntings occur, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. If mowing must be done prior to mid-July, use a flush bar to allow birds time to escape.

6) Minimize the number of field operations that destroy nests and, where possible, use methods that destroy fewest nests (e.g. subsurface tillage).

7) In areas known to support nesting Lark Buntings, conduct prescribed burns in the fall to avoid loss of nesting cover. To retain adequate residual cover for nesting the following spring, burns should be relatively small so a portion of the area contains nesting cover at all times.

8) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Grasshopper Sparrow

Primary Habitat Types: Shortgrass Prairie and Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Grass-hopper Sparrow (GRSP) <i>Ammodramus savannarum</i> Level II M	~Mid-grass grasslands ~Grassy areas within basin-prairie shrublands	~High structure ~Continuous, tall herbaceous cover and conspicuous singing perches ~Ground cover and thatch ~Limited (5%) or no canopy cover		~Late succession ~Up to 35% bare ground for foraging ~Avoids areas with >35% shrub cover ~Burn after the breeding season to suppress woody cover ~Prefers large tracts for nesting ~Nesting territory is 10 to 20 acres	~Heavy livestock grazing can be detrimental, but low to moderate grazing and light burning can be beneficial ~Sensitive to fire prior to nesting ~Cyclic populations due to wet/dry cycles ~Uncommon cowbird host ~Winters in South America

Scattered across Wyoming in grassland habitats, but breeds mainly in the eastern half of the state. Requires herbaceous cover and conspicuous perches. Inhabits shortgrass prairies, mixed grasslands, meadow grasslands, open sagebrush grasslands, and agricultural areas, and avoids areas containing more than 35% shrubs. Builds a grass cup nest in a slight depression on the ground, concealed by overhanging grass and forbs and arched or domed at the back. Eggs (4 to 5, 19 mm) are creamy white and sparsely marked with blotches of reddish-brown over shades of gray and purple. Is an uncommon cowbird host. Gleans food from the ground. Consumes a diet comprised of 63% insects from fall to spring; also eats spiders, snails, and seeds. Winters south to northern South America. Population declines are due to loss of habitat by urbanization, conversion of native grasslands to cropland, and incompatible livestock grazing. Other species that may benefit from habitat management for this species include the Upland Sandpiper, Vesper Sparrow, Dickcissel, Chestnut-collared Longspur, Bobolink, Western Meadowlark, and Sprague's Pipit.

Population Objectives

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Grasshopper Sparrows have been detected on 71 BBS routes in Wyoming, including 44 routes on which they were observed a minimum of 3 years.

- a) Maintain Grasshopper Sparrows on the 71 BBS routes on which they were observed (Figure 43).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

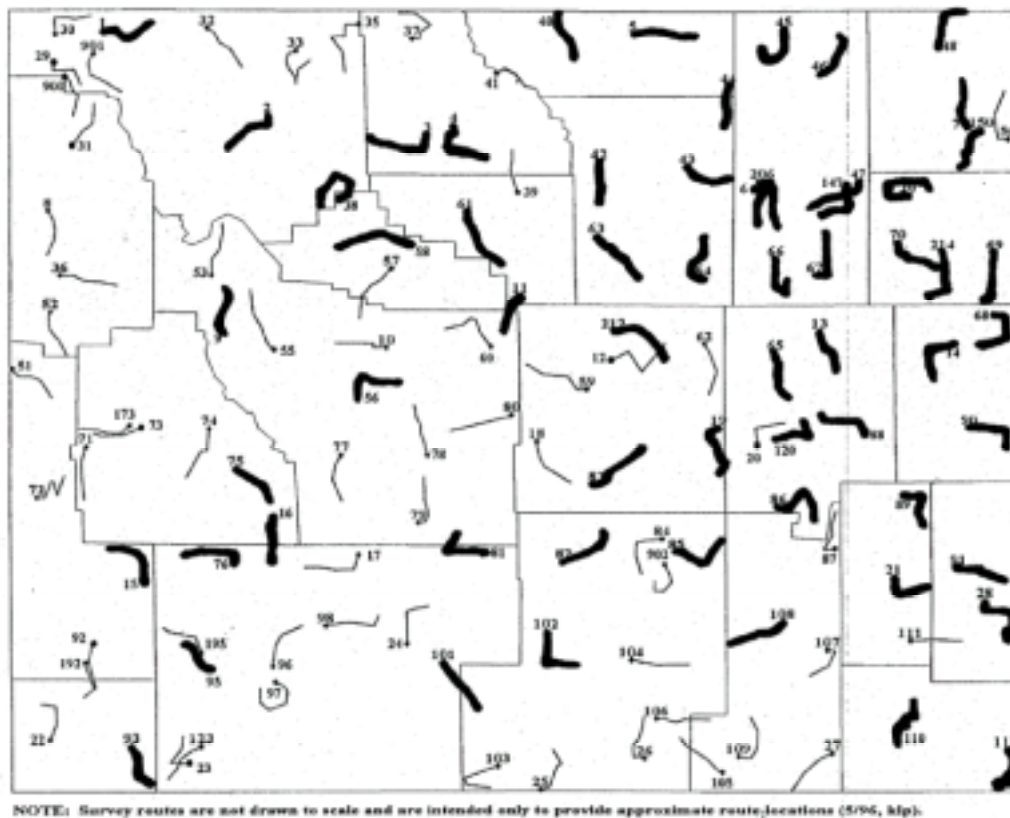


Figure 43. Bold lines indicate Breeding Bird Survey routes on which Grasshopper Sparrows have been observed from 1968 through 2002.

Habitat Objectives

- 1) Manage for dense grass, heavy forb cover, thick litter depth, and minimal shrub canopy in areas where Grasshopper Sparrows occur.
- 2) In areas where Grasshopper Sparrows nest, manage for large tracts with grass height up to 18 inches (46 cm), overall bare ground of 1 to 2%, shrub canopy cover of 5% or less, and territory size of 10 to 20 acres (4 to 8 ha) per pair.

3) In grasslands where Grasshopper Sparrows nest, ensure that singing perches are available, while limiting shrub canopy cover. Singing perches provide a stage for defending territories and attracting mates, and are a critical habitat component for successful nesting for this species. However, Grasshopper Sparrows will avoid areas with greater than 35% shrub canopy cover.

Recommendations

1) High intensity livestock grazing can be detrimental to this species, but disturbance from low to moderate grazing and light burns can be used as habitat management tools. Areas should remain undisturbed long enough for grass and forb cover to become dense and thick layers of ground litter to build up before succession is set back by disturbance.

2) Delay grazing in shortgrass habitat until after the end of the nesting season (the end of July) to ensure that grass cover is available for successful nesting.

3) In hayfields where Grasshopper Sparrows occur, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. However, even haying after July 15th may not protect late nesters such as the Grasshopper Sparrow. Consider growing alfalfa for seed or use late maturing legumes instead of traditional alfalfa management; this would allow cuttings to be delayed. If mowing must be done prior to mid-July, use a flush bar to allow birds time to escape, and leave small areas of uncut hay as refuges for young birds.

4) Avoid mowing grass habitats annually to ensure growth of dense grass and a heavy cover of forbs and to allow ground litter to build up. If mowing must occur, it should be done in the fall after the nesting season.

5) Avoid burning large areas of shortgrass prairie habitats where Grasshopper Sparrows occur. The taller vegetation, singing perches, and ground litter needed by Grasshopper Sparrows and associated species take several years to reach heights that are suitable.

6) If disturbances are periodic, such as every three to five years, and rotated among tracts within a management unit, habitat for Grasshopper Sparrows and associated species will always be provided.

7) In areas known to support nesting Grasshopper Sparrows, conduct prescribed burns in the fall to avoid loss of nesting cover. To retain adequate residual cover for nesting the following spring, burns should be relatively small so a portion of the area contains nesting cover at all times.

8) Planted cool season grass/legume cover, such as that provided by Conservation Reserve Program lands, can also provide suitable habitat for this and associated species.

9) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Grasshopper Sparrows (and other insectivores). Postpone all insecticide use until Grasshopper Sparrows and other insectivores have completed their breeding cycle.

10) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Chestnut-collared Longspur

Primary Habitat Type: Shortgrass Prairie

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Chestnut-collared Longspur (CCLO) <i>Calcarius ornatus</i> Level II M	~Shortgrass prairie ~Mid-grass grasslands ~Basin-prairie shrublands ~Avoids nesting in cultivated fields	~High and low structure ~Denser, more vegetated prairie than McCown's Longspur ~Uses large rock, shrub, or fence post for singing perch	~Moist areas preferred	~High and low succession	~Heavy livestock grazing of shortgrass prairie can be detrimental, but moderate grazing in taller grasslands can be beneficial ~In WY, breeds only in the eastern portion ~Winters in Mexico

Scattered across grassland habitats, mainly in the eastern half of Wyoming. Inhabits shortgrass and open mixed-grass prairies with scattered shrubs. Builds a cup nest of fine grass in a shallow depression on the ground, usually concealed by a clump of grass. May prefer nest sites in moist areas. Eggs (3 to 5, 19 mm) are creamy white and marked with dark brown speckles and blotches. Is an uncommon cowbird host. Forages on the ground on insects, mainly beetles, grasshoppers, and spiders; also eats grass, forb, and sedge seeds. Winters south to north-central Mexico. Contraction of breeding range and population declines are due to conversion of native grasslands to croplands and habitat loss to urbanization. Other species that may benefit from habitat management for this species include the Swainson's Hawk, Ferruginous Hawk, Burrowing Owl, Upland

Sandpiper, Grasshopper Sparrow, Bobolink, Lark Bunting, Dickcissel, and Western Meadowlark.

Population Objectives

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Chestnut-collared Longspurs have been detected on 15 BBS routes in Wyoming, including 7 routes on which they were observed a minimum of 3 years.
 - a) Maintain Chestnut-collared Longspurs on the 15 BBS routes on which they were observed (Figure 44).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

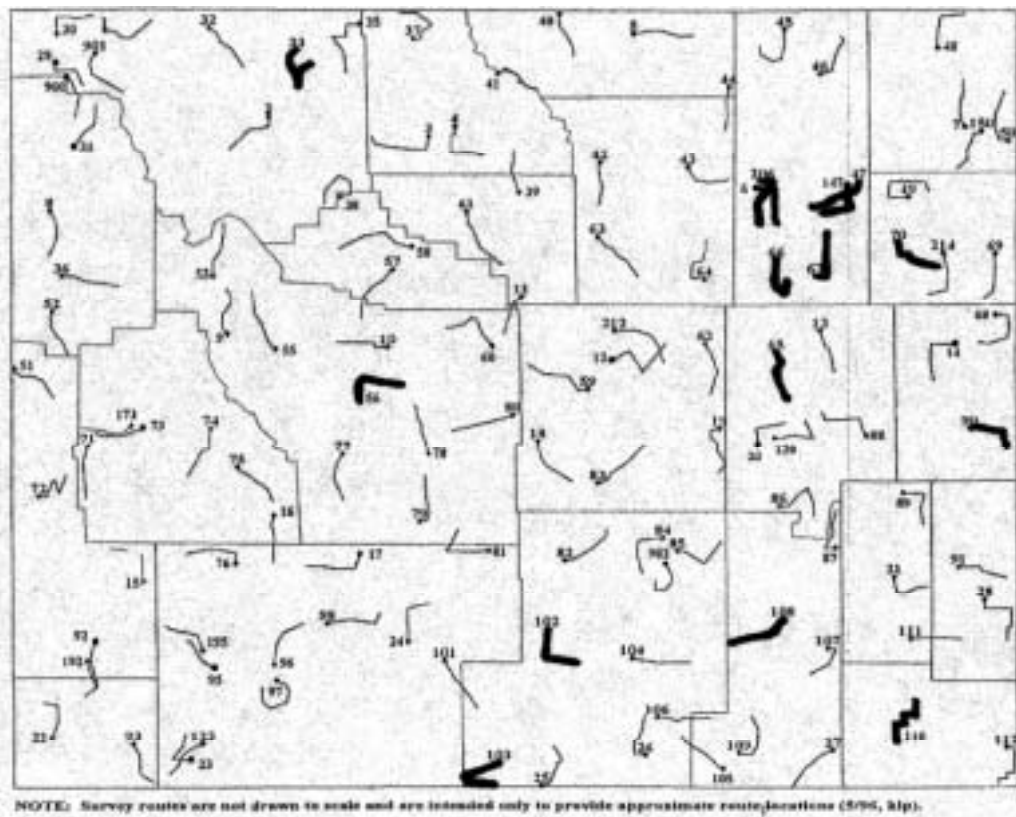


Figure 44. Bold lines indicate Breeding Bird Survey routes on which Chestnut-collared Longspurs have been observed from 1968 through 2002.

Habitat Objectives

- 1) Maintain some cover vegetation for nest concealment in known Chestnut-collared Longspur nesting areas.
- 2) In areas where Chestnut-collared Longspurs breed, manage for required minimum patch size of 115 acres (46 ha) to maintain nesting habitat (i.e. high and low grass/forb structure with singing perches, especially in moist areas).
- 3) Minimize conversion of native shortgrass prairie and mixed-grass grasslands to cultivated agricultural lands. Chestnut-collared Longspurs will not nest in croplands.

Recommendations

- 1) High intensity livestock grazing in short grasslands can be detrimental to this species. Graze lightly or moderately in shortgrass habitat, leaving areas of vegetation at least 6 inches (15 cm) tall. Moderate grazing in taller grasslands can provide both high and low structure for Chestnut-collared Longspurs and associated species.
- 2) Use a twice-over rotation grazing system to create more suitable habitat for Chestnut-collared Longspurs than either season-long or short-duration grazing.
- 3) Protect known Chestnut-collared Longspur nesting sites, as birds will nest in the same area year after year.
- 4) Protect taller grasses that grow around moist sites. These may be the only areas where Chestnut-collared Longspurs and associated species can successfully nest on the shortgrass prairie.
- 5) In areas known to support nesting Chestnut-collared Longspurs, conduct prescribed burns in the fall to avoid loss of nesting cover. To retain adequate residual cover for nesting the following spring, burns should be relatively small so a portion of the area contains nesting cover at all times.
- 6) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Chestnut-collared Longspurs (and other insectivores). Postpone all insecticide use until Chestnut-collared Longspurs and other insectivores have completed their breeding cycle.
- 7) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Dickcissel

Primary Habitat Type: Shortgrass Prairie

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Dickcissel (DICK) <i>Spiza americana</i> Level II M, P	~Mixed-grass grasslands	~Dense cover of grasses and forbs ~Moderately deep layer of ground litter		~Is area sensitive; to maintain a moderate population a minimum of 25 to 75 acres of optimal habitat is needed	~Heavy livestock grazing can be detrimental, but low to moderate grazing and light burning can be beneficial ~Common cowbird host ~Winters in Mexico, Central America, and South America

Found scattered across Wyoming in grassland habitat, but breeding in Wyoming is documented only in the eastern portion. Requires dense herbaceous cover and song perches. Generally inhabits grasslands having taller grasses, forbs, or shrubs, but also uses alfalfa and hayfields. Builds a bulky cup nest of stems, grass, and leaves lined with rootlets, fine grass, and hair in vegetation up to 2 feet (0.6 m) above ground. Eggs (4, 21 mm) are pale blue. Is a common cowbird host. Forages on the ground for insects, grain, and grass and forb seeds. Young birds consume 70% grain, grass, and forb seeds and 30% insects; adults are the reverse. Winters from southwest Mexico south to northern South America. Many Dickcissel nests are destroyed by mowing machines; nest parasitism by Brown-headed Cowbirds can be locally significant; and heavy livestock grazing can be detrimental to nests, young, and prey availability. On the grasslands of northern Venezuela where Dickcissels winter, native grasslands have been highly modified by ranching and grain production. Other species that may benefit from habitat management for this species include the Upland Sandpiper, Bobolink, Grasshopper Sparrow, Baird's Sparrow, Chestnut-collared Longspur, and Sprague's Pipit.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Dickcissel in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

- 1) Manage for dense grass, heavy forb cover, and a moderately deep litter layer in areas where Dickcissels occur.
- 2) Due to the Dickcissel's area-sensitivity, manage for at least 25 to 75 acres (10 to 30 ha) of grassland habitat in the above condition to maintain a moderate population of nesting pairs.

Recommendations

- 1) High intensity livestock grazing can be detrimental to this species, but disturbance from low to moderate grazing and light burns can be used as habitat management tools. Areas should remain undisturbed long enough for grass and forb cover to become dense and a moderately heavy layer of ground litter to build up before succession is set back by disturbance.
- 2) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.
- 3) In hayfields where Dickcissels occur, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. However, even haying after July 15th may not protect late nesters such as the Dickcissel. Consider growing alfalfa for seed or use late maturing legumes instead of traditional alfalfa management; this would allow cuttings to be delayed.
- 4) Avoid mowing grass habitats annually to ensure growth of dense grass and a heavy cover of forbs and to allow ground litter to build up. If mowing must occur, it should be done in the fall after the nesting season.
- 5) If disturbances are periodic, such as every three to five years, and rotated among tracts within a management unit, habitat for Dickcissels and associated species will always be provided.
- 6) In areas known to support nesting Dickcissels, conduct prescribed burns in the fall to avoid loss of nesting cover. To retain adequate residual cover for nesting the following spring, burns should be relatively small (no more than 20 to 30% of the area) so a portion of the area contains nesting cover at all times. Burning is preferable to mowing or haying because vegetation recovers more quickly after burning.

7) Planted cool season grass/legume cover, such as that provided by Conservation Reserve Program lands, can also provide suitable habitat for this and associated species.

Bobolink

Primary Habitat Types: Shortgrass Prairie, Agricultural Lands, and Meadows

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Bobolink (BOBO) <i>Dolichonyx oryzivorus</i> Level II M	~Mixed-grass grasslands ~Irrigated or moist meadows ~Alfalfa	~High structure ~Dense stands of tall vegetation (both native and cultivated) for nests		~Late succession ~Prefers large areas of habitat (e.g. areas >75 acres had more than two times the density of males than areas <25 acres)	~Heavy livestock grazing can be detrimental, but low to moderate grazing and light burning can be beneficial ~Nests in cultivated areas may be destroyed by farming operations; modifying operations can increase nest success ~Uncommon cowbird host ~Winters in South America

Found across most of Wyoming in grassland habitats. Requires large expanses of grass or forb cover. Prefers large, open areas of tall grass, alfalfa, clover, or grain crops; also inhabits native and introduced wet meadows, ungrazed to lightly grazed mixed-grass prairies, and fallow fields. Builds a flimsy cup nest of grass, stems, and rootlets in a depression on the ground. Nest is well concealed with a dense cover of forbs or grass. Eggs (5 to 6, 21 mm) are gray to pale reddish-brown and marked with brown and purple blotches. Is an uncommon cowbird host. Gleans insects, spiders, and grass and forb seeds from the ground and vegetation. Winters in southern South America. Population declines are due to increasingly intensive haying practices, conversion from grass to alfalfa hay crops, and loss of hayfield breeding habitat to urbanization and reforestation. Hay cropping during incubation and early nestling stages results in 100% loss of offspring. Insecticide use in breeding areas both reduces and contaminates their primary food source, which impacts both juvenile and adult birds. Other species that

may benefit from habitat management for this species include the Upland Sandpiper, Grasshopper Sparrow, Dickcissel, Chestnut-collared Longspur, and Sprague's Pipit.

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Bobolinks have been detected on 14 BBS routes in Wyoming, including 2 routes on which they were observed a minimum of 3 years.
 - a) Maintain Bobolinks on the 14 BBS routes on which they were observed (Figure 45).
 - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

Figure 45. Bold lines indicate Breeding Bird Survey routes on which Bobolinks have been observed from 1968 through 2002.

Habitat Objectives

- 1) Manage for dense grass, heavy forb cover, and thick litter depth in areas where Bobolinks occur.
- 2) Manage for large areas [greater than 75 acres (30 ha)] of preferred Bobolink habitat in areas where this species occurs.

Recommendations

- 1) High intensity livestock grazing can be detrimental to this species, but disturbance from low to moderate grazing and light burns can be used as habitat management tools. On a landscape scale, use grazing practices that allow large acreages of grasslands to go to a climax successional stage for Bobolinks and associated species. Areas should remain undisturbed long enough for grass and forb cover to become dense and heavy layers of ground litter to build up before succession is set back by disturbance.
- 2) In hayfields where Bobolinks occur, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. However, even haying after July 15th may not protect late nesters such as the Bobolink. Consider growing alfalfa for seed or use late maturing legumes instead of traditional alfalfa management; this would allow cuttings to be delayed. If mowing must be done prior to mid-July, use a flush bar to allow birds time to escape, and leave small areas of uncut hay as refuges for young birds.
- 3) Avoid mowing grass habitats annually to ensure growth of dense grass and a heavy cover of forbs and to allow ground litter to build up. If mowing must occur, it should be done in the fall after the nesting season.
- 4) If disturbances are periodic, such as every three to five years, and rotated among tracts within a management unit, habitat for Bobolinks and associated species will always be provided.
- 5) In areas known to support nesting Bobolinks, conduct prescribed burns in the fall to avoid loss of nesting cover. To retain adequate residual cover for nesting the following spring, burns should be relatively small so a portion of the area contains nesting cover at all times.
- 6) Planted cool season grass/legume cover, such as that provided by Conservation Reserve Program lands, can also provide suitable habitat for this and associated species.

7) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Bobolinks (and other insectivores). Postpone all insecticide use until Bobolinks and other insectivores have completed their breeding cycle.

8) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

Scott's Oriole

Primary Habitat Type: Juniper Woodland

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Scott's Oriole (SCOR) <i>Icterus parisorum</i> Level II M	~Juniper-sagebrush	~Mature woodlands with moderate to sparse canopy closure ~Also uses smaller junipers and deciduous shrubs for foraging		~Lower elevations where junipers create a savannah with herbaceous vegetation and desert shrubs ~Tree density <60 per acre	~Will come to sugar-water solutions at bird feeders ~Rare cowbird host ~Natural history and habitat requirements poorly known ~In Wyoming, is dependent on the southwestern juniper community ~Winters from northern and northwestern Mexico south to southern and southwestern Mexico

Currently found only in the juniper woodlands of southwestern Wyoming. Occupies mature woodlands with moderate to sparse canopy closure. Nests at the lower elevations, where junipers create a savannah with herbaceous vegetation and desert shrubs. Nests in a juniper, toward the end of a branch, 4 to 18 feet (1.2 to 5.5 m) above the ground. Builds a pendant nest suspended from twigs, constructed of grasses on the outside, and fine grasses, hair, and soft white material from various sources on the inside. Eggs (2 to 4, 24 mm) are pale blue, marked with brown, black, purple, and

gray. Is a rare cowbird host. Forages among juniper branch tips and shrubs, gleaning primarily insects from the foliage. Also probes flowers for nectar and small insects. Will come to sugar-water solutions at bird feeders. Winters from northern and northwestern Mexico south to southern and southwestern Mexico. Its required habitat is restricted in distribution in Wyoming, making it vulnerable to extirpation. Readily abandons historical nesting areas and establishes new ones, making the monitoring of population trends difficult. Natural history and habitat requirements are poorly known. Could be threatened by extensive tree removal, soil erosion, isolation from other populations in neighboring states, or by cessation of natural juniper stand rejuvenation, primarily through fire suppression. Other species that may benefit from habitat management for this species include the Ferruginous Hawk, Mourning Dove, Cassin's Kingbird, Western Scrub-Jay, Bushtit, Northern Mockingbird, and Western Meadowlark.

Population Objectives

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Scott's Oriole in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

Habitat Objectives

1) Maintain mature stands of juniper in a savannah with herbaceous vegetation and shrubs.

Recommendations

- 1) Due to a lack of information on this species, determine additional habitat requirements through inventory, monitoring, and research.
- 2) Use prescribed fire to create habitat for Scott's Orioles by opening dense stands.
- 3) Natural fires less than 1,200 acres (500 ha) should not be suppressed except when significant stands are threatened or when fragmentation of old growth stands will become too severe.
- 4) Increase the quantity and quality of shrub cover near to or interspersed among mature juniper stands to enhance foraging.
- 5) Because of the Scott's Oriole's restricted range, limit congested recreation where this species occurs.

6) Avoid or minimize insecticide use in woodland habitats to maintain a food source for Scott's Orioles (and other insectivores). Postpone all insecticide use until Scott's Orioles and other insectivores have completed their breeding cycle. Where possible, allow insect outbreaks to proceed naturally.

7) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.